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The APOTHECARY'S APPRENTICE FIFTY YEARS AGO.

By Robert Shoemaker.

Read at the Pharmaceutical Meeting January 20.

It was in the year 1831 the writer entered one of the best known apothecary "shops" (so-called then)—at that day—in this city, as an apprentice. Looking back to that time, and comparing the duties of the apprentice then with what they are now, one almost wishes he had been born 50 years later. The store was large for that day, situated on the corner of two of our principal streets, having three large "bulk" windows—with a show bottle for each pane of glass, making 24 bottles to each window.

The morning work began with taking down the shutters from these windows and two double doors, making the fire (if in cold weather), sweeping the store, cleaning and filling, with sperm oil (no gas in those days), a number of lamps, which were suspended from the ceiling. The shop was opened at 6 o'clock A. M. the year round, and this daily routine of work was to be finished before breakfast.

After breakfast (the work having been laid out the day before) began the preparation of medicines—as powdering (for, with a single exception, every powder was prepared by ourselves), the preparation of tinctures, pills, ointment, etc. *Gum* nipples were unknown then—heifer's teats trimmed out (and preserved in alcohol until wanted), tied over the mouth of an 8 ounce bottle, constituted the nursing bottle of the time. These were prepared in quantities for our own sale and for other apothecaries; how well I remember the bottle containing them standing right by the side of another containing clyster pipes—these to be attached to a bladder when required for use.

Thanks to Goodyear for the abolishment of these "implements."

I have said there was *one* drug we did not powder—not because it was difficult of reduction—but because my good preceptor saw fit to

patronize (with this one article) a worthy old character named John Price, who, in a frame shanty on Callowhill street, had, what he called, a drug mill. In this building old friend Price had erected some rude machinery, which was set in motion by a mule. The sole attendant, the proprietor, received such easily powdered drugs as were confided to his care through an 8 by 10 aparture from an outside vestibule. None were allowed a nearer approach than this to the wonderfully constructed powdering apparatus within. Of rhubarb we would have returned, *in due time*, about two-thirds in powder—the remaining one-third in a separate package labelled "crumbs."

In that well remembered old iron mortar, so firmly seated on a stout post descending throug the cellar to the earth, all else was powdered. Ipecac, gamboge, sanguinaria and cantharides (this last moistened with alcohol) arise to my mind (and *nostrils* too) as among the particularly obnoxious articles I was obliged to reduce to a *fine* powder. Those old boxed silk sieves were provokingly fine. I often thought a coarse material might have answered the purpose, but "Needles" had his orders.

My dear old preceptor, one of the best of men, was a firm believer in those lines of Watts:

"Satan finds some mischief still
For idle hands to do."

Consequently the "embryos" were kept ever at work. Once in a fortnight all the bottles in the "shop," together with the windows were to be washed. But, lest Satan might steal a chance to reveal that "mischief," a large marble mortar, of 2 or 3 gallons capacity, was stationed in one corner, firmly fixed in the open top of a keg with a pestle of wood, having a long handle, passing through a support at the top, and in said mortar were always the ingredients for either mercurial ointment or blue mass—and that old seat by the side of that mortar was never empty, except when more important duties claimed our attention. What does the modern student in pharmacy know about the luxury of *killing* mercury?

Talk of a cat having 40 lives, why 40 *times* 40 will not suffice for the extinguishment of mercury; rub! rub!! rub!!! day after day and yet the labor continues. Thankful may the modern apprentice be that this work is now done by machinery.

But you will ask, "what time for study?" I will tell you. After

lamp light, between the calls of customers, we had the privilege of reading "Cox's Dispensatory," "Turner's Chemistry," "Ure's Chemical Dictionary," and, once in a quarter, the welcome "Journal of Pharmacy."

It is not to be wondered that, after the labors of the day, one found it difficult to keep awake throughout the long winter evenings. And I well remember how I sat, with book in one hand and a pound weight in the other, so that the dropping to the floor of the weight, in case of my being overcome with drowsiness, might arouse me.

We did a large prescription business (for that day) and in looking over the well-preserved books, containing the prescriptions from the year 1830 to 1855, my mind is sadly impressed with the fact that, so far as I know, not one of the well-known physicians in this city, in 1832, is now in practice, and, I believe, all but two or three have passed away. Those old formulas are interesting to behold. Sugar-coated pills, fluid extracts, highly colored, deliciously flavored elixirs, and a host of other medicaments were all in the womb of the future when these doses were prescribed. Infusions were much in vogue, larger pills and greater doses were swallowed in those days.

Allow me to present one or two prescriptions, taken at random, from "Book 1832:"

℞ Pulv. rhei,
Pil. rufi, ... *aa* ℥ss
Sapo., ... grs. viii
Ol. carui, ... gtt. iii
M. ft. pil xii.

What would our fastidious patrons of the present time, who object to an elegantly gelatin or sugar coated pill of *two* grains, say to these *six* grain fellows, as they lift them from their bed of Pulv. Glycyrrhizæ?

Take another:

℞ Sulph. magnesia, ... ℥iii
Calomel, ... ℈i
Tart. Antim, ... gr. i
M. ft. pulv. viii.

And two days after, for the same patient:

℞ Sennæ, ... ℥vi
Mannæ, ... ℥iii
Sem. fœnic., ... ℥ii
Cream tartar, ... ℥i

Sig.: Infuse in one-half pint of water two hours, and take a wine-glass full at a dose.

But enough, I give these specimens to show, by contrast with the present time, what great improvements have been made in the science of pharmacy. Generally, doses were large and nauseous. "Children," then, "did *not* cry for more."

A popular anthelmintic, fifty years ago, was: Rad. spigeliæ, ℥i; sem. chenopodii, ʒii; sennæ, ʒss; infuse, etc. Another was cowhage, given in molasses. Now we have santonine and other active principles, so combined with sugar and aromatics, in the form of confections, as to make the remedy a coveted "Bonne Bouche," and "children *do* cry for more."

In the summer of 1832 we had the first and most awful visitation of Asiatic cholera Philadelphia has ever experienced. Then it was that apothecaries had as much as they could well do, night and day. Many of my readers remember the camphor bags and Burgundy pitch plasters; the first worn in the bosom, suspended by a string around the neck, and the latter over the abdomen.

I have said we had no sugar-coated pills, or fluid extracts; neither had we machine-spread plasters. Apprentices then did have some advantages over those of the present time, their opportunities for learning the art of manufacturing were greater.

"The manufacturing pharmaceutist" was unknown. Apothecaries (wholesale dealers alone were called "druggists") made their own preparations, and all plasters were spread by hand, as wanted (adhesive plaster, on cloth, excepted).

The experience of 1832, therefore, made many perfect in the spreading of plasters. Ten by twelve and ten by fourteen inches were not unusual sizes. Well do I remember one nervous old gentleman, who, to ward off an attack of the dreaded disease, in addition to his camphor pouch, ordered a whole lamb-skin to be spread with Burgundy pitch, sprinkled with powdered camphor. The order was executed, the large plaster carried to his house by the writer and duly applied, covering well the stomach and abdomen. The next morning a messenger came to say that Mr. W. could not arise from his bed and dress, as the plaster had slipped down, and he required help. The removal of that plaster was a more difficult task than had been its preparation. It may be well to remark that the old gentleman escaped an attack of cholera, and lived many years to proclaim the virtues of camphor and Burgundy pitch as a preventive of Asiatic cholera.

My experience, at this time, in the preparation of plasters, was of great service to me in after years, as it led me to contrive a plan (succeeded, however, by the invention of another) which enabled me to produce plasters superior to any spread by hand. From 1838 to 1850 I manufactured large quantities, enjoying almost a monopoly of the business. In some weeks, I find, we spread as many as 5,000 plasters. But now, with improved machinery, the preparation of plasters, porous and others, has become an important industry. I have no means of learning the number produced annually, but from the great and constantly increasing demand it must be enormous.

NOTE ON SOME AMERICAN SPECIES OF ARTEMISIA.

By John M. Maisch.

Nearly eight years ago ("Amer. Jour. Phar.," 1872, p. 196 and 295) I called the attention to *Artemisia Ludoviciana*, Nuttall, which was recommended as a hair tonic and as a febrifuge, for both purposes to be used in the state of infusion. From the interesting paper by Dr. E. Palmer (*Ibid.*, 1878, p. 590) we learn that the Pah-Utes use strong tea of the same plant to assist childbirth, and wads of the fresh plant to stop hemorrhage from the nose; even the fruit is employed by these Indians, ground fine, made into a mush and eaten. The species which belongs to the section *Abrotanum*, which has the flower-heads heterogamous, but all florets fertile, is found in Wisconsin and Illinois and westward to California and Arizona.

Recently I obtained a specimen of a plant sent from Arkansas, near the banks of the Mississippi, where it was stated to have made its appearance after a freshet in 1876, having been previously unknown in that section. Although accompanied with but few leaves, the plant was recognized as *Artemisia dracunculoides*, Pursh, and this was verified by comparing it with the specimens in the College herbarium. The plant is said to produce irritation when bruised, and a tea of it to be diaphoretic. Dr. Palmer reports the fruit to be used by the Pah-Utes as food in the same manner as the preceding species. The plant grows in western Illinois and westward, is common throughout Nevada, and extends southward to Arizona, west of the Sierras to California and northward to Oregon. It grows from 2 to 4 or 5 feet high, is some-

what woody at the base, glabrous or somewhat pubescent when young, has linear, entire leaves, the lower ones being occasionally threecleft, and an ample paniculate inflorescence, consisting of very numerous heads, which are about one-tenth inch in diameter. The herb has an agreeable, wormwood-like odor, which is not very strong; its taste is bitter, but by far less so than wormwood. The plant belongs to the section *Dracunculus*, which has the flowerheads heterogamous, but only the pistillate florets on the margin are fertile.

To the same section belongs *Artemisia filifolia*, Torrey, which is known in the west as *southern wood*. The plant grows to the height of 2 or 3 feet, has slender virgate branches and dense leafy panicles of very small, three- to five-flowered tomentose heads, in which only the two pistillate florets are fertile, while the rest are perfect but sterile. The leaves are filiform, revolute on the margin, the lower ones frequently threecleft; they are whitish tomentose, but when old become nearly smooth. According to Dr. Palmer the Pah-Utes use a decoction of it against swellings and bruises, and, by distillation, a very penetrating volatile oil may be obtained which is useful in liniments.

Of greater importance than the species named appear to be those which, in the States bordering on the Rocky Mountains, are called *sage-bushes* or *sage-brushes*. They belong to the section *Seriphidium*, are shrubby, have few-flowered heads and grow in arid localities. Two of the sage-bushes, *A. arbuscula*, Nuttall, and *A. trifida*, Nutt., are dwarfy, about 6 inches or the latter sometimes 18 inches high. But the more important, *A. tridentata*, Nutt., attains a height of 5 or 6 feet, has a ragged, fibrous bark, numerous spreading branches and crowded tomentose-canescent leaves, about an inch long, cuneate-oblong and with three short and obtuse teeth at the apex. It is a pale green shrub, and has a strong aromatic smell. Prof. Sereno Watson states that it covers hundreds of square miles in the plains and on the foothills of Nevada and Utah, and extends from Oregon to Arizona and Sonora, and as far east as the mountains of Colorado. According to Dr. Palmer, the Pah-Utes use a strong tea of this plant for headache, colds and for worms. By distillation a pungent volatile oil may be obtained from it.

The COLORING PRINCIPLE of FRASERA WALTERI, Mich.

By J. U. Lloyd.

Read at the Pharmaceutical Meeting, January 20.

In 1840 Mr. J. W. Douglass examined the root of this plant (American Columbo), discovering a yellow crystalline substance. This he obtained in very small amount, and impure, from which reason he could not determine its nature with satisfaction, the conclusion being that the substance was a mixture of gallic acid and a yellow coloring principle ("Am. Jour. Ph.," vol. xii. p. 177). Mr. W. R. Higinbothom again investigated the constituents of this root (1857), obtained the yellow principle, but failed to purify it, ascribing to it "a bitter and nauseous taste," and stating that it was "partially soluble in chloroform" ("Am. J. Ph.," vol. xxxiv, p. 23). In 1868 Mr. F. W. Thomas submitted the root of this plant to a chemical examination, preparing the coloring principle and ascribing to it a bitter taste and acid reaction. "These crystals, when laid on moist litmus paper, reddened it decidedly" ("Am. J. Ph.," vol. xl, p. 310).

In 1873 Mr. G. W. Kennedy obtained, by a complex manipulation, yellow crystals. These possessed acid properties, and were supposed by Mr. Kennedy to be *gentisic acid* (gentianin or gentianic acid). ("Proc. Am. Pharm. Assoc.," 1873.) From a review of the published articles upon this subject it may be readily supposed that the coloring matter of the root is the acid obtained by Mr. Kennedy, and, arguing therefrom, we may well infer that the preceding examinations resulted in the discovery of this same substance in a more or less pure state where reference is made to the yellow coloring matter, more especially as two of the gentlemen ascribe to it acid properties. In connection with the subject, permit me to call attention to the specimens of crystals accompanying this paper, and the experiment instituted for the purpose of determining more carefully the nature of a substance previously obtained by the writer from the root of *Frasera Walteri*.

Carefully-selected root of *Frasera Walteri* was coarsely powdered and dried by exposure to a current of warm air (100°F.) in a drying room. Of this powder ten avoirdupois pounds were taken and submitted to percolation in a narrow cylindrical percolator, thus obtaining all practical contact between menstruum and powder. The menstruum employed was warm alcohol, s.g. ·835, the operation being conducted in a warm room. The first five pints of percolate were reserved,

filtered, then submitted to a temperature ranging from 0°F. to —10°F. for the period of thirty-six hours, at the end of which the sides and bottom of the vessel were studded with a crystalline deposit consisting of two distinct classes of crystals, one class hard and transparent, the other needle-like and yellow.

The transparent were sweetish, contaminated with bitterness, soluble in water, slightly in alcohol, insoluble in ether. After trituration with repeated portions of alcohol (to remove grape sugar and adhering bitter principles) they were dissolved in water. The solution was purely sweet, refused to be affected by Fehling's solution and gave no reaction with tests for the alkaloids. Upon exposing the solution in a watch crystal to a current of air, 125°F., crystals of the shape of cane sugar were deposited. These were charred by concentrated sulphuric acid. This substance was cane sugar. (See specimen.)

The second class of crystals were in beautiful lemon-yellow tufts radiating in silky needles from a common centre. They were bitter when first separated from the mother solution and acid to litmus paper, both of these characteristics depending upon the presence of adhering impurities. They were washed repeatedly in cold alcohol, in which they dissolved but slightly, then with warm water until free from tugar. As thus obtained (see specimen *A*), they were lemon-yellow, odorless, tasteless. They were insoluble in cold water, but tinged boiling water slightly straw color. They dissolved slightly in cold alcohol, freely in boiling alcohol, very freely in cold ether, cold chloroform and cold carbon disulphide, more being dissolved by each menstruum which followed that preceding. The crystals were neutral to moistened litmus paper, red or blue, and all of the solutions failed to affect either colored paper. When the crystals were boiled with water, the addition of ferrous sulphate and ferrous chloride failed in both cases to produce a precipitate or alter the color of either crystal or solution towards blue or green.

With nitric acid the crystals dissolve, forming a deep-red solution without evolution of nitric oxide. With sulphuric acid they form a deep orange-red solution. With hydrochloric acid in the cold, no apparent change; upon boiling, the acid becomes straw-colored, while the crystals seemingly remain unaltered. They refused to unite with either of the aforementioned acids when dilute.

Upon boiling the purified crystals some time with dilute sul-

phuric acid, a yellow oily substance rose upon the surface and the crystals disappeared. Upon cooling, this substance solidified to a waxy consistence and sunk to the bottom of the tube. The supernatant colorless liquid was filtered, neutralized with carbonate of calcium, filtered again and the filtrate tested with Fehling's solution; no precipitate.

The crystals change cold ammonia water to yellow, but do not neutralize it. With cold concentrated solution of caustic potash or caustic soda no change is apparent; upon boiling, the crystals turn orange-red. Dilute solution of caustic potash turns yellow, but is not neutralized. Upon heating them with caustic potash, no evolution of ammonia resulted.

All attempts to obtain the reaction of an alkaloid or an acid with the ordinary reagents from any solution of the crystals resulted in failure. These crystals are those of an indifferent organic body differing from any heretofore examined by the writer. The process employed in obtaining it is so simple as to forbid the idea that the crystals are a product of manipulation and the result of a splitting up of some natural compound, which might result when excessive or long-continued heat is resorted to, or the use of chemicals. It may be safely accepted that this substance is *a*, perhaps *the*, principal coloring matter of the root.

Reasoning from the foregoing, and comparing the process employed by myself with those of preceding investigators, I think it may safely be supposed that the same substance, in a more or less impure state, was previously obtained. To the first investigator, Mr. Douglass, may well be ascribed the credit of the discovery, since he concluded the substance obtained by himself to be a *yellow coloring principle* mixed with gallic acid. Again, others state that as obtained by themselves it was partially soluble in chloroform, and we may well infer the *insoluble* matter to have been impurities.

Adhering to the crude crystalline masses of mixed crystals I found, as might be supposed, a small amount of grape sugar. Accompanying this paper I send an ample quantity of the mixed crystalline matters obtained by myself. They have been washed with cold alcohol to separate the adhering bitter substance. Also a supply of the purified yellow crystalline substance (*A*).

THE OXIDATION OF FERROUS SALTS AT LOW TEMPERATURES.

By F. L. Slocum.

Read at the Pharmaceutical Meeting January 20.

There appeared in this journal for March, 1879, page 141, a new process for the preparation of solution of perchloride of iron, without the aid of heat, by adding the acid solution of ferrous chloride to the requisite quantity of nitric acid.

In the Journal for December, 1879, page 587, is a verification of the successful application of this process, and a like happy result is reported with Monsel's solution, by the same procedure.

At the request of Prof. Maisch, and under his directions, I made numerous experiments with the following results:

Liquor Ferri Perchloridi.—The acid solution of the ferrous chloride and the nitric acid had a temperature of 78°F., the temperature of the room; on slowly adding the acid ferrous chloride to the nitric acid the temperature rose to 120°F. Oxidation was quite energetic, and nitrous fumes were given off constantly without foaming. When about two-thirds of the ferrous chloride was oxidized the temperature had receded to 105°F., and oxidation was hardly perceptible, and when the whole of the ferrous chloride had been added, which required about fifteen minutes' time, the temperature of the solution had receded to 85°F. After standing a while the solution acquired a color similar to the officinal liquor, but owing to the great range of temperature it passed through in oxidizing, several nitrogen oxides were formed and remained, contaminating the solution; complete oxidation was not effected, and it is next to impossible to free the solution from nitrogen compounds.

After making numerous experiments, each time using a little higher temperature to begin with and a slight modification of the process, the following was found to be a very practicable process, and the lowest temperature that could be used to get at correct results:

Mix the nitric and reserved hydrochloric acid in an evaporating or suitable basin, heat them to a temperature of 140°F., and filter into the mixed acids the solution of ferrous chloride previously heated to 180°F.; stir the solution while the liquids are mixing; oxidation takes place gradually and completely, the temperature rising to 160°F. or 165°F. There is no accumulation and sudden expulsion of nitrous fumes causing foaming, as in the officinal process. The result is an

acid solution of ferric chloride answering to the requirements of the Pharmacopœia.

Liquor Ferri Subsulphatis.—A saturated aqueous solution of the ferrous sulphate was made, and to it the sulphuric acid was added; this solution was gradually added to the requisite quantity of nitric acid, both the acid solution of ferrous sulphate and the nitric acid being at 76°F.; on mixing, the solution acquired a temperature of 116°F., and only partial oxidation ensued, leaving a dense black liquid which, on standing two days, acquired a color similar to the officinal liquor, but contained both ferrous and ferric sulphate with nitric acid.

Several experiments were made, using each time an increase in temperature, until the following process was found to give a satisfactory result:

Mix the nitric and sulphuric acids (using a slight excess of nitric acid), heat them to 140°F.; make a hot saturated aqueous solution of ferrous sulphate (if necessary a few drops of sulphuric acid may be added), and when at a temperature of 180°F. or 190°F. filter it into the heated acids; oxidation takes place quietly and completely, the nitrous fumes being given off gradually from first to the close of the operation. After oxidation is completed the solution should be kept at 140°F. for a few minutes, to remove all traces of nitrous fumes. The result is a solution of ferric sulphate, with a slight trace of nitric acid.

The particular advantage of these formulas is that there is no accumulation of nitrous fumes, followed by their sudden expulsion at the end of the oxidation, causing foaming and making the use of capacious dishes a necessity. But the oxidation and liberation of the nitrous fumes takes place at the same time, from the first gradually to the close of the operation, of course the low temperature required is also a marked advantage.

SYRUP OF BROMIDE OF ZINC.

By L. Lyons.

Read at the Pharmaceutical Meeting January 20.

The processes for the preparation of the bromide of zinc given in the chemical text-books are based upon either the direct combination of zinc with bromine, or the metal is dissolved in an aqueous solution of hydrobromic acid.

The disadvantages of manipulating with free bromine are obvious. In the second process the hydrobromic acid solution is not easily obtained by all pharmacists, nor are they all supplied with the conveniences for making the acid.

For these reasons experiments were performed in the College Laboratory with the view of obtaining a formula whereby pharmacists could make, from materials always on hand, a solution of bromide of zinc for the purpose of making the syrup of bromide of zinc.

The following process depends upon the double decomposition of bromide of potassium and sulphate of zinc.

The quantities used were taken according to the proportion existing between the molecular weights of the salts, which is about 5 to 6, or 2 molecules of bromide of potassium (238) to 1 of crystallized sulphate of zinc (287). $2KBr+ZnSO_4=ZnBr_2+K_2SO_4$.

Experiment I. 35 grains of potassium bromide and 42 grains of crystallized sulphate of zinc were triturated in a mortar, and after the mixture had become liquid alcohol was added to dissolve the resulting $ZnBr_2$. The solution was then filtered from the crystalline precipitate; the zinc was precipitated by sulphhydrate of ammonium, filtered, the filtrate evaporated to dryness, and a residue was obtained which was found to be bromide of potassium. The precipitate obtained by alcohol was washed with alcohol, and then contained the sulphates of both metals, but was free from bromide.

Experiment II. 100 grains of potassium bromide and 120 grains of crystallized sulphate of zinc were dissolved separately in a small quantity of water, and the solutions mixed while hot. When the liquor was cold, twice the bulk of alcohol was added, the precipitate removed by filtration, and the filtrate treated the same as in experiment I. In this also, was found a large percentage of bromide of potassium.

These experiments were repeated, and with the same results.

It necessarily followed that either the process or the manipulation was faulty.

Iodide of zinc in the presence of any of the iodides of the alkaline metals forms a double salt.

As iodine and bromine act similarly in combining, the conclusion is that in the above experiments the double salt, $KBrZnBr_2$, was formed. In order to decompose this double salt, a larger quantity of zinc sulphate must be used. The quantity was doubled, as follows:

Experiment III. 100 grains of potassium bromide and 240 grains of crystallized sulphate of zinc. The same process as II was followed. The residue, after treatment with sulphhdyate of ammonium, was very minute—a trace of potassium salt.

A solution of bromide of zinc, made by acting with bromine upon the metal, was filtered through paper and evaporated to dryness. It gave a dark grey colored mass, whereas a portion of the same solution, filtered through asbestos and evaporated, gave a perfectly white mass. The coloration in the former case is evidently due to organic matter, showing the analogy of the bromide with chloride of zinc, which also dissolves organic matter, showing the analogy of the bromide with chloride of xinc, which also dissolves organic matter. Even the alcoholic solution of bromide of zinc, filtered through asbestos, will yield a dark colored salt on evaporation.

Perhaps the most convenient preparation for the administration of bromide of zinc would be a syrup of definite strength. A syrup containing 10 per cent. of dry bromide of zinc was made by using the solution from experiment III, and evaporating the alcohol. The amount of dry bromide was calculated, and found to be 92 grains. Water was added to make the whole weigh 414 grains, and afterwards 506 grains of sugar, which was dissolved without the aid of heat. The proportions used are as follows:

92 grains $ZnBr_2$,	10 parts
322 grains water,	35
506 grains sugar,	55
920 grains.	100 parts.

Formula for making 1,000 *parts of Syrupus Zinci Bromidi.*

Take of	Bromide of potassium,	106 parts
	Crystallized sulphate of zinc,	255

Dissolve the salts separately in the least quantity of water, and mix while hot. Allow the mixture to stand until cold, then add twice the bulk of alcohol; stir it well and filter. Evaporate the filtrate until the alcohol is gone, then add enough distilled water to make the solution weigh 450 parts; transfer to a bottle and add sugar, 550 parts. Dissolve without heat.

The syrup is transparent and nearly colorless. It is inodorous and has an astringent and somewhat metallic taste. It can be given in combination with most tinctures and syrups. An agreeable preparation is made by combining it with orange-flower water.

TINCTURE OF KINO.

By G. W. Kennedy, Ph.G.

In submitting the results of numerous experiments I am highly gratified to state that a tincture can be made which will not gelatinize, and hope that those pharmacists, who have occasionally been annoyed by the change alluded to, will try the modified process, and have no cause in the future to complain.

There is scarcely a pharmacist, in whose locality the tincture is used, that has not been annoyed with several of the astringent tinctures, and more particularly with the tincture of kino. The process of the present Pharmacopœia is a decided improvement over that of 1860; but gelatinization occurs sometimes shortly after preparing the tincture, and its instability is the reason why some physicians have abandoned its use.

Several remedies have been proposed from time to time to prevent gelatinization and consequent loss of astringency. Against one of these, glycerin, I have very little to say, since a tincture, when made with a menstruum consisting of 2 parts water, 1 part alcohol and 1 part glycerin, kept apparently unchanged until the beginning of the ninth month, when all at once, as it were, it became a semi-solid mass.

Alkalies have been recommended, but they change the tannin and destroy the astringency, and a similiar effect has carbonate of magnesium. Half a pint of tincture was carefully prepared according to the method recommended in "American Journal of Pharmacy," 1873, page 260, and had but a slight astringent taste, and was scarcely darkened in color on the addition of salts of iron.

It is true that a stronger alcoholic menstruum, as recommended by some writers, exhausts kino more rapidly and satisfactorily than perhaps any other solvent, and the tincture, as thus prepared, so long as the alcoholic strength is preserved, I believe will not gelatinize, but if the preparation is insecurely kept evaporation of the alcohol takes place and the tincture gelatinizes. It must also be remembered that medicinally it is not always desirable to administer a preparation containing so much alcohol.

The formula which I recommend is not altogether original with me, similar ones being in use in Philadelphia and perhaps elsewhere. In my hands it has given perfect satisfaction in preserving the tincture.

Five pints each of each tincture of kino and of catechu were made in June, 1878; at this date there is no precipitation or gelatinization of what is left, about a pint in each bottle, and the preparations are just as reliable to-day as they were then.

Therapeutically, there can be no objection to the use of a small quantity of logwood entering the preparation, as it has likewise astringent properties.

The formula is as follows: Take of kino three troyounces, logwood half a troyounce, diluted alcohol a sufficient quantity. Reduce the kino and logwood to coarse powder, and prepare in the usual way by percolation.

Pottsville, Pa., January, 1880.

Additional Remarks by the Editor.—At the last meeting of the British Pharmaceutical Conference, Mr. B. H. Bamford read a paper on the same subject, recording his observation with a tincture which had been purchased from a London drug house between 1862 and 1864, and since that time had been kept in a partly filled bottle covered with blue paper, and dusted and shaken every morning; although over fifteen years old the tincture did not gelatinize, and the remedy proposed against the trouble was daily agitation and a cover of blue paper.

From the subsequent discussion we make a few brief abstracts. Mr. Martindale was of opinion that much depended on the age, and in the opinion of Mr. Umney on the source of the kino used. Mr. T. F. Abraham had never seen the tincture gelatinize during fifteen years; Mr. Preston had used the tincture for seventeen, and Mr. Hasselby for twenty-five years, and both noticed only one case of gelatinization. Only one instance was also observed by Mr. Robbins and by Dr. Symes. Messrs. Ellinor and Savage had known the tincture prepared by one establishment to gelatinize, and made by others to remain liquid; the latter had been exposed to the light. The use of glycerin for its preservation was also alluded to, but it remained to be proved whether the addition affected prejudicially the astringency of the tincture.

These are the observations. As to the remedy, it was the opinion of the President, Mr. Schacht, that it lay not so much in the management of the preparation as in the selection of the material of which it was

composed; and Mr. Ellinor stated that kino which tinged the saliva was the best kind, and it never gelatinized as far as his experience went. None of the speakers expressed any faith in the remedy proposed by Mr. Bamford.

Although kino has been repeatedly the subject of chemical investigation, the conditions under which the tincture is occasionally transformed into a jelly have not been determined; but we believe it is generally admitted that a watery menstruum favors and alcohol prevents or retards the change. Most of the European Pharmacopœias use alcohol of about ·835 specific gravity; the French Codex directs 60 per cent. alcohol. It seems to us that the only admissible remedy is the alcoholic strength of the menstruum, until, by comparative experiments with kino of well determined origin or properties, the effectiveness of other proposed remedies has been demonstrated.

TINCTURE OF CHLORIDE OF IRON.

By G. H. Chas. Klie.

The Pharmacopœia has the tincture prepared from one part of solution of chloride of iron and three parts of alcohol. The solution of chloride of iron is prepared by dissolving iron wire in hydrochloric acid and oxidizing the iron by the addition of sufficient nitric acid. The Pharmacopœia directs putting the acid and iron wire together into a flask and letting the mixture stand until effervescence ceases, then heating to the boiling point, decanting, filtering, etc. Warmth or heat will in most instances dissolve and, under proper conditions, keep in solution more of a given salt than what will be dissolved at ordinary temperature. So in this instance, although the mixture, when reaction has thoroughly set in, gets warm, the more concentrated the solution becomes the more the reaction will diminish, and, as a consequence, warmth will decrease, until finally the whole cools off and effervescence ceases. If the mixture is now heated to the boiling boint, effervescence re-begins, and if allowed to go on, it may take an hour or two before it ceases, showing that by heating considerably more iron has passed into solution. According to the wording of the Pharmacopœia, it appears as if the heating to the boiling point, decantation, filtration, etc., were to follow close upon one another. If it read, "Place the mixture on a vapor or water bath until effervescence ceases, decant, filter," etc., a solution of chloride of lime having full strength would result.

However, if one has prepared the solution repeatedly, and has taken the trouble to test the same each time, the defect of the formula and how it is overcome will soon become apparent.

The writer of this, being curious as to the quality of tincture of iron sold here, procured twenty-five samples from the same number of apothecaries located in all parts of the city. These samples were tested, as the Pharmacopœia directs, under solution of chloride of iron, viz.: When diluted with water, it affords no precipitate with chloride of barium or ferridcyanide of potassium. When a crystal of sulphate of iron is added to a little of the solution, and afterwards a few drops of sulphuric acid, a black color is not produced near the crystal. Two fluidrachms of the solution (or one fluidounce of the tincture) treated with ammonia in excess yield a precipitate of sesquioxide of iron, or ferric oxide, which, when washed, dried and ignited, weighs 28·25 grains. The external characteristics of the tincture were noted also. The result is given in the following table:

Sample.	Quantity of ignited Sesquioxide of Iron in 1 fl. oz. of tincture.	Color.	Ethereal odor.	Chloride of Barium Test.	Ferridcyanide of Potassium.	Crystal of Sulphate of Iron with Sulphuric Acid.
	Grs.					
1	22·8	light yellow-brown	slight	faint precip.	no precip.	no black color
2	28·25	light red-brown	none	" "	" "	" "
3	24·8	light yellow	slight	" "	blue "	" "
4	18·4	light red-brown	"	" "	no "	" "
5	20·	red brown	modrt.	copio's "	blue "	" "
6	26·8	light yellow	none	" "	" "	" "
7	12·8	"	"	no "	" "	" "
8	24·	"	slight	" "	" "	" "
9	24·	"	none	. . .	. . .	. . .
10	4·8	brown-red	strong	faint precip.	no precip.	black color
11	20·	"	none	. . .	. . .	. . .
12	22·8	light yellow	slight	faint precip.	blue precip.	no black color
13	26·	"	trace	" "	" "	" "
14	28·	"	marked	. . .	. . .	. . .
15	28·25	black-green	none	faint precip.	blue precip.	no black color
16	28·	light yellow	slight	. . .	. . .	. . .
17	30·	brown-yellow	"	. . .	. . .	. . .
18	28·25	light yellow	marked	. . .	. . .	. . .
19	24·	brown-yellow	modrt.	. . .	. . .	. . .
20	21·	dark brown	none	precipitate	blue precip.	no black color
21	28·25	black-brown	"	faint precip.	no "	" "
22	18·	light yellow	faint	v'ry ltl. "	" "	black color
23	16·8	"	trace	no "	" "	no black color
24	20·4	brown-yellow	marked	faint "	blue "	" "
25	27·6	"	faint	small "	no "	" "

Four tinctures, or 16 per cent. of the samples, have the right strength; one is too strong; four tinctures, or 16 per cent., almost reach the standard, and the balance, or 64 per cent., average from 4·8 to 25 grains; average strength, 14·73 grains, or 67·88 per cent.

What is the reason that, taken strictly, only 16 per cent. of the apothecaries dispense a full-strength preparation? One may infer that either, if the solution was prepared by the apothecary himself, the defect in the formula was not detected and avoided, or, if purchased, the preparation was made by some one who was in the same predicament, or who paid no attention whatever to the Pharmacopœia. However, since the apothecary stands between the manufacturer and the prescribing physician, he ought to demand a preparation from the former which, if tested by the latter or himself, would meet the requirements of the Pharmacopœia. If this course were strictly followed, the dispensing of an officinal tincture would soon become the rule, and not the surprising exception, as at present. Another exceedingly humiliating inference might be drawn from the perusal of the above table, namely, that the average apothecary will freely dispense a preparation which he may either lack the ability to prepare as it ought to be prepared, or he may be too indolent to do it, consequently will, without compunction or considering the responsibility resting upon himself, dispense a preparation prepared by others which he is too lazy even to test. He takes for granted that because he purchases from an apparently honest and reliable wholesale house, and because the general external characteristics of the tincture are present, therefore the preparation must necessarily be full strength. It isn't safe; in fact, the strength of tincture of iron cannot be judged by the general external characteristics.

The tincture of chloride of iron is a preparation which figures frequently in physicians' prescriptions, and great reliance is placed upon it in some very grave affections of the human system. Furthermore, it is almost as frequently sold over the counter as paregoric or essence of peppermint. The very least, therefore, that the apothecary can do is to dispense a tincture which will contain the amount of iron intended by the Pharmacopœia.

In earlier editions of the Pharmacopœia the tincture was prepared by dissolving, with the aid of a gentle heat, one-half pound of the so-called subcarbonate of iron in a pint of hydrochloric acid and adding three pints of alcohol. This formula did not give universal satisfaction, on

account of the variability of the product. Undoubtedly this variability was not the result of the insolubility of the subcarbonate alone, but may, more or less, have been the result of defective manipulation—as, for instance, the non- or improper application of heat to effect solution. The writer of this well remembers a very expeditious and easy method followed by several apothecaries of this city; but the resulting tincture does not reach the standard of the Pharmacopœia by 50 per cent. It is: Place the subcarbonate of iron in a bottle of sufficient size, pour on the hydrochloric acid, shake frequently until effervescence ceases, add the alcohol and filter. This finishes the tincture. An ounce of the tincture made in this manner treated with ammonia in excess, and the precipitate washed, dried and ignited, was found to weigh 12·8 grs.

Lowell, N. St. Louis, January, 1880.

CHEMICAL NOTES.

By Prof. Samuel P. Sadtler.

Inorganic Chemistry. — *Volatility of Platinum.* — Victor Meyer notices the recent statements of F. Seelheim as to the volatility of platinum (this Journal, current volume, p. 18), and shows that they have no applicability to his results on the vapor-density of chlorine at high temperatures. In these experiments the decomposition of the platinous chloride left the platinum in the form of a small stick of coherent platinum sponge of exactly the shape of the little glass bulb used for the platinous chloride. Moreover, the weight of the platinum left was almost absolutely the weight required by calculation of the composition of the platinous chloride. Again, the results gotten where iodine was used were just as anomalous as those gotten with chlorine, and of course the iodine was used from the beginning as pure iodine. So the Victor Meyer results remain as yet unexplained, the author giving no further information and expressing no views as to the reason of the variance from normal density.—*Ber. der Chem. Ges.*, xii, p. 2202.

Crystallization of Carbon.—At a meeting of the Glasgow Philosophical Society, on Wednesday, Dec. 24th, 1879, Mr. James Mactear stated that he had obtained transparent crystals of the form and refractive power of diamonds. They resisted acids, alkalies and the intense heat of the blow-pipe, and scratched glass. Prof. Maskelyne (Dec. 31) found these crystals not to scratch either topaz or sapphire, not to

burn in a stream of oxygen, but to dissolve in hydro-fluoric acid, showing them to be a silica compound, the correctness of which conclusion was subsequently acknowledged by Mr. Mactear.—*Chem. News.*

Production of Ozone, Test for Manganese and Cause of Hydrogen Explosions.—At the meeting of the German Scientific Association for 1879, held at Baden-Baden, Sept. 19th to 23d, Prof. Böttger made some observations upon the above subjects. He had observed that if, instead of covering small sticks of phosphorus half their length with water, solutions of potassium bichromate were used, ozone was much more readily obtained. Also that the red coloration of chemically-pure fused potassium chlorate caused by traces of manganese compounds was an extremely delicate test for manganese. The frequent explosions which take place in the preparation of hydrogen by the action of sodium upon water he thought might be explained by the assumption of the formation of a sodium peroxide, which, in liberating oxygen, formed an explosive mixture with the hydrogen.—*Ber. Chem. Ges.*, xii, p. 2187.

On a Hydride of Silicium.—J. Ogier has submitted pure silicon hydride to the action of the electric discharge. After a time pure hydrogen only remains, while a yellow coating is formed in the interior of the tubes. This on analysis proves to be a body of the composition Si_2H_3, a subhydride of silicon, corresponding to C_2H_3, crotonylene. When moderately heated in air it burns, throwing off small sparks. It is inflammable in chlorine when cold; when heated cautiously in an atmosphere of hydrogen or nitrogen, it evolves siliciuretted hydrogen. He has also studied the action of the electric discharge upon arseniuretted hydrogen; it also forms a solid hydride, As_2H, corresponding to the solid phosphide of hydrogen, P_2H.—*Comptes Rendus*, Dec. 22, 1879.

Organic Chemistry. — *On Solid Hydrocyanic Acid.* — Messrs. Lescœur and Rigaut have made some studies upon the solid products which separated from hydrocyanic acid solution. They remark that pure hydrocyanic acid can be preserved very long, and it is usually the presenc eof ammonium cyanide and water, which changes it into the solid black substance called azulmin. A trace of potassium cyanide brings about this decomposition even in the absence of water. The black mass is ordinarily amorphous, but often permeated with more or less transparent crystals, which can be extracted with boiling benzol. In this way are obtained colorless, lustrous crystals, which easily become

brown and decompose, are dissolved by alcohol or boiling water readily, although very slightly in cold water. Their composition is CNH. The body dissolves readily in acids; with hydrochloric acid it yields a black hygroscopic mass, which probably possesses the composition $(CNH)_3$ $3HCl,3H_2O$ The solid hydrocyanic acid changes under the influence of the air and moisture into new products containing azulmin. If this latter be treated with warm alcohol, a dirty-red amorphous powder is extracted, which is only slightly soluble in water, but dissolves in alcohol with a red color, and has the formula $(CNH)_3H_2O$.—*Ibid.*, Aug. 4, 1879.

Presence of Cumol in Pennsylvania Petroleum.—Engler made the interesting statement to the German Scientific Association, at Baden-Baden, that about 0·2 per cent. of cumol is contained in this petroleum, and that this small amount would nevertheless make about 1,400,000 kilograms of cumol yearly imported into Germany. Petroleum naphtha contained at least this amount, also, of cumol. The determination of this hydrocarbon was made as tribromcumol, of which specimens in needles, one to two inches in length, were shown.—*Ber. der Chem. Ges.*, xii, p. 2187.

On Glycyrrhizin.—Habermann has published the results of a detailed investigation of this subject. By repeated recrystallization of the commercial glycyrrhizinum ammoniacale out of glacial acetic acid and strong alcohol, he obtained the acid ammonium salt of glycyrrhizic acid, $C_{41}H_{62}NO_{18}.NH_4$, in slightly colored crystalline plates. This salt is very easily soluble in boiling water, insoluble in ether, slightly soluble only in absolute alcohol or alcohol of more than 90 per cent. in strength. It is left, on evaporation of its aqueous or weak alcoholic solution, as an amorphous brittle mass. Small amounts of alkalies increase its solubility in water in an extraordinary degree. The salts of the heavy metals produce voluminous precipitates in its aqueous solutions. Ordinary nitric acid dissolves it, yielding a colorless solution, but when heated a copious evolution of gas ensues and resinous flocks separate out. Concentrated sulphuric acid dissolves it with orange-red color, from which solution water precipitates colorless flocks. It possesses an intensely sweet taste with the characteristic after-taste, which, however, disappears more and more as it is purified. The glycyrrhizic acid itself is a tribasic acid. The neutral ammonium glycyrrhizate is a clear-brown amorphous mass of unpleasantly sweet taste, easily solu-

ble in water and weak alcohol, insoluble in absolute alcohol. The neutral potassium salt is a yellowish-white, loose, amorphous mass; the acid potassium salt, $C_{44}H_{62}NO_{18}K$, forms small crystalline grains of an intensely sweet taste, and behaves with reagents like the acid ammonium salt. The lead salt is an amorphous precipitate. The free acid prepared from the lead salt is amorphous, decomposes already at 100° and reduces Fehling's solution rapidly.—*Ann. Ch. und Phar.*, 197, p. 105.

Contributions to the Knowledge of Quinamin.—Oudemans has studied this alkaloid discovered by Hesse in the *Cinchona succirubra*. Hesse had given the composition at first as $C_{20}H_{26}N_2O_2$, but later changed this to $C_{19}H_{24}N_2O_2$. Oudemans' analysis of the free base appeared to substantiate the first formula, but the iodine determinations in the well-crystallized iodhydrate corresponded better with the second formula, so the matter is left uncertain. The following reactions appear to be characteristic of quinamin:

If a drop of the solution of a quinamin salt be carefully added to concentrated sulphuric acid, which contains a small amount of nitric acid, there is produced a chestnut-brown color at the point of contact if the solution be concentrated, orange colored in case the solution be more dilute, and, on continued dilution with water, at first a purple color and then a faint rose-red color.

If one writes upon paper with a not too concentrated solution of quinamin, in a slight excess of sulphuric acid, and lays the paper with the written side down upon a watch crystal, in which have been placed a little sulphuric acid and a few crystals of potassium chlorate, the writing becomes brownish or olive colored. On taking the paper away the written characters gradually become rose colored.—*Ber. der Chem. Ges.*, xii, p. 2101.

On Pilocarpina.—Alex. Poehl delivered an address upon this alkaloid at the Baden-Baden Meeting of the German Scientific Association. The pilocarpine remains unaltered, even after two days' heating with hydrochloric acid or with baryta water. On the contrary, the distillate gotten by heating the alkaloid with caustic soda solution contains a body probably identical with coniae. The paper contains, besides, notices on the detection of pilocarpine when mixed with other poisons, on the color reaction with potassium bichromate and sulphuric acid and the spectrum thus obtained, and finally on the method of its quan-

titative determination with phosphomolybdic acid in the presence of free hydrochloric acid.—*Ibid.*, p. 2185.

Technical Chemistry.—*On the Preparation of Potassium Carbonate by the Action of Trimethylamin.*—In order to apply to the potash manufacture a reaction analogous to that involved in the well-known ammonia-soda process of making sodium carbonate, the Croix Stock Company, of Croix, France, have patented the use of trymethylamin. A mixture of 1 part potassium chloride and 4 parts of the trimethylamin of commerce is saturated with carbonic acid gas. There is formed at first carbonate and bicarbonate of trymethylamin, which reacting with the potassium chloride forms easily soluble trymethylamin hydrochlorate and potassium bicarbonate, which remains insoluble under these conditions. The reaction takes place at ordinary temperatures, although cold, pressure and stirring facilitate it. In 3 to 4 hours, pure potassium chloride can readily be converted into a product containing 97 to 99·5 per cent. of potassium carbonate, the bicarbonate first formed having been converted into neutral salt, according to the ordinary methods.

GLEANINGS FROM THE GERMAN JOURNALS.

By Louis von Cotzhausen, Ph.G.

Blaud's Ferruginous Pills.—A good pill mass, of a green color and remaining soft, so as to be readily formed into pills, and allowing other substances, usually given in connection with iron, like quinia, morphia, etc., to be mixed with it, is prepared by I. Pitschke from carbonate of potassium and sulphate of iron, each 2 parts, made into a pillular mass with one part of an excipient consisting of carbonate of magnesium, glycerin and grape sugar; 2½ parts of this mass contain 1 part iron sulphate.—*Pharm. Ztg.*, Dec. 3, 1879, p. 750.

A New Test for Free Mineral Acids in Vinegar, particularly well adapted for testing so-called brandy vinegar, is suggested by Hager, and consists in adding to 20 cc. (= 20 grams) vinegar, contained in a previously-weighed shallow glass evaporating dish, 4 cc. liquor ammoniæ, and exposing the mixture to a temperature above 70°C. On evaporation, pure vinegar will leave only a light or dark-brown spot, while if tartaric or a mineral acid is present, a crystalline residue remains, and, if largely adulterated, a sufficient quantity will remain for the quan-

titative determination of the acid.—*Pharm. Centralh.*, Dec. 4, 1879, p. 450.

Alkargene, or Cacodylic Acid.—$AsH(C_2H_3)_2O_4$ was declared to be an entirely innocent compound by its discoverer, Bunsen, and by others, although it contains so much arsenic. Lebahn contradicted their statement, and is now corroborated by H. Schulz, whose recent investigations proved that the acid, both when taken internally and when injected, is very poisonous. — *Ztschr. d. Allg. Oest. Apoth. Ver.*, Dec. 10, 1879, p. 528, fr. *Ber. d. Deutsch. Chem. Ges.*

Borocitrate of Magnesium is a white powder having an acid taste but no odor, and is considered by Dr. Kœhler a very valuable therapeutic agent in the treatment of stone and gravel in the bladder and kidneys and for bladder catarrh. It is usually given in the form of a mixture of magnesium borocitriate 40 grams, powdered sugar 80 grams and oil of lemon 1 drop, a dessert-spoonful of which is administered three times daily in half a tumblerful of water.—*Pharm. Post*, Dec. 16, 1879, p. 374, fr. *Berl. Klin. Wochenschr.*

Solvents of Gun Cotton.—Bardy enumerates the usual mixture of alcohol and ether, acetone, methylic alcohol and glacial acetic acid. The solving power of the mixture of alcohol and ether is too well known to require further mention.

Acetone is soluble in water in every proportion, and is one of the best solvents of the cotton. If the solution is poured into water, the acetone immediately combines with the latter, while the cotton is precipitated in distinct large white flakes, which can be readily washed and dried, when 3 grams occupy the space of almost 200 centimeters

Methylic alcohol likewise mixes with water in every proportion and dissolves the cotton readily, yielding a somewhat cloudy solution, which, if poured quickly into water, precipitates the cotton as a compact gelatinous mass; if poured in a very thin stream into cold water, a very voluminous mass results, 25 grams of which occupy the space of 2 liters; when dried, this mass resembles horn in appearance, is semi-transparent and amber-colored, and dissolves readily in the mixture of alcohol and ether.

Glacial acetic acid readily dissolves gun cotton, the solution possessing the same behavior as that in acetone towards water; on drying, every trace of acetic acid is volatilized.— *Pharm. Ztschr. f. Russl.*, Nov. 1, 1879, p. 659, fr. *Polyt. Notizbl.*

A Tincture of the Root of Baptisia Tinctoria (see "Am. Jour. Phar.," 1862, p. 310, and Dec., 1879, p. 577), was used with very good success by Johnson in the treatment of seven cases of typhoid fever, three of which were very severe, in the dose of 1 to 5 drops every one to four hours in connection with cool lotions, milk and stimulants; it almost entirely prevented delirium and diarrhœa, diminishing the heat and soon affecting a cure. The root has a sickening taste, causes vomiting and diarrhœa when taken fresh, and was formerly used, as Dr. Rosenthal informs us, as an antiseptic remedy in scarlet and typhoid fever, and also as a substitute for quinia.—*Pharm. Centralh.*, Nov. 20, 1879, p. 438.

The Seeds of Simaba Cedron, Cedron tree, N. O. Simarubeæ, indigenous to New Granada, resemble almonds in appearance and are known as "Cedron." They are prescribed by the physicians of New Granada as a fever medicine, and are also used internally and externally as an antidote for the bite of poisonous animals. The natives of New Granada and Central America never venture into the forests unless supplied with a few of the seeds, which are cut into thin transverse sections, and these are applied to the wounds. Fever patients cut the seeds into pieces the size of a pea, which they swallow gradually. Hager attributes their efficiency to quassiin, the bitter principle of quassia, a large percentage of which he supposes is contained in them. The seeds of other species, like S. ferruginea, St. Hil. (Picrodendron calunga, Martius), are probably collected in Brazil as "Cedron."—*Ibid.*, Nov. 20, 1879, p. 435.

Eugenia cheken, N. O. Myrtaceæ, indigenous to the forests of Chili, is recommended by Augusto Borchers, at Valparaiso, as a new valuable drug. The inhalations of the vapors rising from its aqueous infusion are stated to be very efficacious in the treatment of diphtheritis, bronchitis and laryngitis, while the aqueous infusion and the extract of the plant were successfully employed in the treatment of indigestion, dyspepsia and all bowel and kidney complaints.—*Ber. d. Deutch. Chem. Ges.*, xii, 1789, p. 2111.

Mikania Guaco, HBK., was first recommended by an Indian to Mutis (1788) as a prophylactic for snake bite; soon after its juice and a tincture of it were used for intermittent fever, rheumatism, gout, cramps, hydrophobia, syphilis, old sores, and cholera; it was soon, however, almost forgotten until Dr. G. van Schmitt, a Dutch physi-

cian, recently revived its use by employing it, in connection with other substances, for cancer, claiming wonderful curative properties for it, which, however, are considered doubtful by Hager. The leaves and stems of the plant are usually used in the West Indies, and have an unpleasant, aromatic, bitter taste; the leaves and stems of Mikania saturejæfolia, Willd., are considered equally efficacious.—*Pharm. Centralh.*, Nov. 20, 1879, p. 438.

The Efficacy of Koosso resides, according to Professor Arena, not in koossin but altogether in the green, slightly bitter resin, which is soluble in alcohol and ether. It is contained in the fresh powder, but on exposure to air turns yellow and loses its bitterness and medicinal efficacy.—*Pharm. Ztschr. f. Russl.*, Nov. 1, 1879, p. 655, from *Allg. Med. Centr. Ztg.*

Morphia tartrate has been recommended by Erskine Stuart as a morphia salt particularly suitable for hypodermic injections, because more concentrated solutions can be obtained of it than of the muriate or acetate. It is very soluble in water and alcohol, forms neutral, wart-like crystals consisting of needles, and is made by disolving 10 grams crystallized morphia and 2·5 grams (or sufficient) tartaric acid in 40 grams hot distilled water, and evaporating in a moderately warm place. —*Pharm. Centralh.*, Nov. 20, 1879, p. 434.

Characteristic Tests for Papaverina and Codeia.—I. *Papaverina.* —S. Tattersall heats the substance to be tested with a few drops of sulphuric acid until dissolved, adds a small piece of arseniate of sodium and heats again over a small flame; the solution soon turns wine-red, and finally, us soon as sulphuric acid vapors begin to escape, dark blueish-violet, this color is very permanent. After cooling, about 10 cc. of water are added; the now orange-colored liquid is poured into a bottle, diluted, and caustic soda added until slightly alkaline, when the liquid turns very dark—almost black. Other alkaloids—like strychnia, brucia, morphia, salicin, atropia, narcotia, narceia, digitalin, picrotoxin, curarin, colchicia and cantharidin—turn light-orange or dirty-yellow on the addition of alkalies.

II. *Codeia*, heated with sulphuric acid and Na_3AsO_4, yields a dark blue coloration—much darker than that produced by ferric chloride under the same circumstances. On the addition of water and alkalies it turns orange, which is a characteristic reaction of this alkaloid.—*Pharm. Ztschr. f. Russl.*, Dec. 11, 1879, p. 721, fr. *Chem. Centralbl.*

Scillain, was isolated from *Urginea scilla*, Steinh., by E. v. Jarmersted as an amorphous white powder. It is a glucoside; does not contain nitrogen; is scarcely soluble in water, but readily soluble in alcohol; yields sugar when boiled with dilute acid, and acts sufficiently poisonous in the dose of 1 or 2 milligrams to kill dogs and cats.—*Ber. d. Deutsch. Chem. Ges.*, xii, 1879, p. 2165, fr. *Arch. f. exper. Pathol. u. Pharmakol.*

Emetia.—Podwissotzki obtained from ipecacuanha ¾ to 1 per cent. of pure emetia, in fine tabular crystals, on the slow evaporation of etherial or alcoholic solution. Emetia is soluble in about 100 parts of water, more readily soluble in ether, chloroform and fats; has a strong alkaline reaction; forms salts with acids, which were not obtained in crystals; melts at 62 to 65°C.; is precipitated from solutions of its salts by alkalies and alkaline carbonates in an amorphous state, and somewhat resembles colchicia in its therapeutical action.—*Ibid.* fr. *Ibid.*

Elais guineensis.—According to H. Soyaux, the well-known botanist of the German Expedition to Southwestern Africa (1873–1876), the oil-palm is indigenous to all parts of Western Africa, and is the most attractive specimen of African vegetation. It is known to the native negroes as "m-ba," and to the Portuguese as "palmeira de azeite." An idea of its usefulness may be approximately formed when it is considered that a tree yields annually one gallon of palm-oil. This fat is orange-yellow, a little softer than green soap, and is obtained by subjecting the fruit to a fermentation by burying it for about 30 days in the ground, then removing the fleshy portion, which has become comparatively loose by this time from the hard kernels, melting, removing the coarse impurities, and cooling. It is then packed and sent to the European factories, where the oil is again melted in large kettles, allowed to settle, and the pure oil is decanted. According to Livingstone, the oil is obtained by boiling the fruit, contusing in a mortar, treating with water, and separating the supernatant oily layer. Other authors state that the fruit is contused before boiling. The seeds of the oil-palm are as hard as horn, have a grayish-blue semi-transparent color, the size of a hazelnut, contain also a large percentage of fat, which is expressed in Europe, and are exported from all ports which export palm-oil, in bags woven from the split leaves of the Hyphæna palm; they are known to the Portuguese as "coconotte."—*Pharm. Handelsbl.*, Dec. 17, 1879, p. 51.

Adulteration of Codliver Oil.—A Dutch journal contains an account on codliver oil adulterations. The oil is stated to be frequently adulterated in Norway with the oil of the liver of Scymnus borealis, a fish belonging to the shark family, found in large numbers in the Arctic Ocean, the northern portion of the North Sea and along the west coast of Norway. The largest of these fishes yield 1½ to 2 casks of liver, the oil of which is fully as bright and clear as codliver oil, contains little stearin, is cheaper, almost equally as efficacious, but has a very disagreeable taste. The fat of the marine mammalia is also frequently used for sophistication, but rarely in Norway. It contains very little fatty acid, and is with difficulty digested.—*Ibid.*, Dec. 3, 1879, p. 49.

Production of Codliver Oil in Norway in 1879.—(For production in 1878 see "Amer. Journ. Pharm.," April, 1879, p. 194.) L. Monrad Krohn reports that the catching of codfish and the preparation of the oil give employment to a larger number of fishermen every year; that the total quantity of medicinal oil exported from Bergen in 1879 was about 3,600 hectoliters (=3,100 casks) white oil prepared by steam; 15,000 hectoliters (=13,000 casks) yellow medicinal oil, and 6,000 hectoliters (=5,000 casks) browish-yellow oil. The white oil is prepared with constantly increasing care. The brownish-yellow oil is exported for medicinal purposes principally to Belgium and Holland.—*Ibid.*, p. 50.

Production of Iodine in Norway.—150 kilos of first-class iodine, the first manufactured at a new laboratory at Bergen, was recently exported to Germany. L. Monrad Krohn expresses the opinion that Norway, with its extensive sea coasts, rich in laminarian species, will undoubtedly soon produce an immense quantity of iodine.—*Ibid.*

PREPARATIONS OF WHITE QUEBRACHO BARK, (Aspidosperma Quebracho).

BY DR. BURGOS.

The following extract from a thesis by the author appears in the "Revista Farmacéutica" (Buenos Ayres), for November.

Powder of Quebracho Blancho.—Possesses all the physical and organoleptic properties of cinchona powder; in color it is intermediate between the red and yellow barks. It is prepared in the same manner

and can be used for the same purposes, pharmaceutically, as an antiseptic alone or mixed with wood charcoal, or as an ingredient in dentifrice powders, electuaries, etc.

Infusion.—The infusion is similar to sherry in color, clear and transparent. It has a bitter taste, analogous in every respect to that of an infusion of cinchona, but more pronounced. It is prepared with the same proportions as the decoction.

Decoction.—Quebracho bark, bruised, 1 part; water, 20 parts. Dr. Mantegazza prepares it in the proportions of 1 to 12 or 18. The decoction is more intense in color than the infusion, and if it be concentrated so as to reduce it to one-third it acquires a color as deep as that of port wine. It remains clear whilst kept at an elevated temperature, but as it cools it deposits an abundant precipitate. A few drops of sulphuric acid restore partially its transparency by dissolving the alkaloid it contains. If added to a solution of sulphate of iron a very large quantity of greenish-grey precipitate is produced. With ammonia it undergoes no alteration.

The decoction is used as a tonic and febrifuge and it is the form in which quebracho is administered in the provinces where paludal fevers prevail.

Digestion.—Made with sulphuric or acetic acid in the proportions indicated for the preparation of the alkaloid according to Fraude's method. At the end of four to six days it is as intense in color as the concentrated decoction and has a much more bitter taste, as it contains much alkaloid in solution.

It can also be prepared for internal use with a smaller quantity of sulphuric acid.

Tincture.—Quebracho bark, bruised, 1 part; alcohol, 56°, 5 parts. Macerate during eight days and filter. (This formula corresponds to the tincture of cinchona of the Codex).

Compound Tincture.—Quebracho bark, bruised, 2 parts; orange peel, 1 part; alcohol, 56°, 15 parts.

Wine.—Quebracho bark, bruised, 1 part; alcohol, 56°, 2 parts; white wine, San Juan or Mendoza, 16 parts. Leave the alcohol in contact with the bark during twenty-four hours, then add the wine, macerate for eight days and filter. The use of one or other of these wines is recommended because they contain little tannin and possess a special aroma that communicates an agreeable flavor to the preparation.

An *Elixir*, very pleasant to the palate, is made by adding sugar to this preparation.

Extracts.—Both the aqueous and alcoholic extracts may be prepared by the ordinary processes.

Syrup.—Quebracho bark, 3 parts; water, 32 parts; sugar, 16 parts. Boil the bark with the water, filter and evaporate down to the fourth part, add the sugar and make the syrup *secundum artem.*

Preparations with the Alkaloid.—Aspidospermin or quebrachin is insoluble in glycerin. It dissolves readily in fats and fixed oils, and may be incorporated with codliver oil in larger proportion than quinia. The following is a suitable formula:

Codliver oil, 100 parts; aspidospermin, 6 to 8 parts; dissolve with the aid of heat. It is easy to conceive the usefulness of such a preparation as this, in which the special properties of the oil are joined with those of the alkaloid, and which in small doses acts as an eupeptic.—*Phar. Jour. and Trans.*, Dec. 20, 1879.

NOTE ON ERVUM ERVILIA, THE BITTER VETCH.

By William Southall, F.L.S.

In the Journal for April, 1873, was given the result of a trial at the Birmingham County Court, as follows:

"An action has recently been brought to recover damages alleged to have been sustained by the death of fifteen pigs, caused by eating adulterated meal supplied by the defendant. Evidence was given that the stomachs of the dead pigs presented symptoms of irritant poisoning. Dr. Hill, the borough analyst, said that he had analyzed a portion of the meal, and had been unable to detect any trace of poison, but that there was some sand present, to which, perhaps, the inflammation was due. For the defence, chemical evidence was given by experts that the meal contained no poison. The judge decided in favor of the defendant, expressing an opinion that the deaths resulted from the improper manner in which the food was given."—*Birmingham Gazette.*

This trial occupied two days, and twenty-four witnesses were called. My firm was employed by one of the several parties interested to analyze the meal, but, the result being negative as regarded the ordinary poisons, was not called upon to give exidence. The hypothesis

relating to the proper cooking of the meal was raised by my ingenious friend, the late Alfred Bird, who suggested that the meal being mixed with cold water, lumps of starchy coagulate were formed, which were totally indigestible, and so caused death; whereas, had the meal been properly cooked with hot water, it would have been soluble, and no harm would have resulted. In this view he was followed by a professor of Materia Medica and by a professional chemist. The manifest effect of the food was severe vomiting, followed by speedy death. The judge delivered an elaborate judgment, in which he said he laid no claim to practical knowledge in feeding pigs, but he adopted the view, and gave a verdict for the defendant. It will presently be seen that this view was in the direction of the truth, but was quite erroneous.

Being interested in the subject, and desirous of solving the obscurity in which it was left by the trial, I procured some of the seeds of which the so-called pea meal was made, and found that they had been called Egyptian peas, but that they were really very much smaller than peas, and that the correct name was Rovi seed, a cargo of which had been imported from Turkey. These I sowed in my garden; they sprang up, flowered and bore fruit, and proved to be the *Ervum ervilia*, or bitter vetch. I sent a specimen to Prof. Oliver, at Kew, who confirmed the name. The mystery was now made clear, as these seeds are known to be poisonous.

Since that period, I have heard of several cases of pigs being poisoned, but could not obtain the seeds of which the meal they were fed upon was made. During the last summer, however, a number of pigs were poisoned at Stratford-on-Avon, and on examining the seed I found it to be about half Rovi-seed and the remainder a black tare, or vetch, a much larger seed. It therefore seemed to me desirable that a statement of these facts should be published for the sake of the pigs, and, possibly, for that of men.

The seed of *Ervum ervilia* is about the same size, and almost exactly the same rufous-brown color as that of the Egyptian lentils (*Ervum lens*), and when the testa is removed they are both of an orange-pinkish color, but the former is not so bright as the latter. The seeds of *E. ervilia* are not, however, lenticular, but are obtusely triangular, and this serves to distinguish them from lentils, for which popular food they might be an unpleasant substitute.

Modern writers do not take much notice of *E. ervilia;* it is by sev-

eral simply mentioned as poisonous. Lindley, in his "Vegetable Kingdom,"[1] says that the seed mixed with flour produces weakness of the extremities, and render horses almost paralytic. J. C. Loudon[2] attributes these same qualities to *Lathyrus sativus*, but his figure of *L. sativus* is that of *L. aphaca*, so there may be some confusion with both writers. Sir John Hill, whose "Herbal" is dated 1756, dismisses it as a plant having no properties worthy of notice; but if we go back another hundred years we find it to be an article of the Materia Medica, and that it had the credit of curing the Emperor Augustus, "whose griefe it is probable was a toughe flegme condensate in the lungs, and and hard to be avoyded and spit forth."

In those well-known books, Gerarde's "Herball"[3] and Parkinson's "Theater of Plantes,"[4] the bitter vetch and its virtues are fully described, and the same engraving does service in both. The name given is *Orobus receptus herbariorum*; and it is curious to observe how the properties attributed to it by Galen and the older writers are quoted in every book of this and of anterior date, except Celsus, that I have consulted. After the old fashion it is said to be hot in the first degree and dry in the second. Gerarde says that "men do altogether abstain from the bitter vetch, for it hath a very unpleasant taste and naughty juice; but kine in Asia and in most other countries do eat thereof, being made sweet by steeping in water." It is directed to be given as a medicine with honey as an electuary.

In the "Commentaries of Matthiolus upon Dioscorides,"[5] a book of about the same date, we find that there was then considerable controversy as to the true identity of Orobus, Ervum and Ervilia, and which of the plants known to the ancients were meant by those names. He quotes Galen, "*Boves apud nos ut apud alios plerasque gentes Ervo in aqua edulcato pascuntur; hominum cibis prorsus hoc semen damnatur, est enim insuavissimum, et pravi succi.*" In Bauhinus[6] great work, "Historia Plantarum,"[6] the difficulty is still further worked out, one suggestion being that Ervilia must be the same as *Phaseolus*, the kidney

[1] Lindley's "Vegetable Kingdom," 1853, p. 548.
[2] Loudon's "Encyclopedia of Plants," 1836, p. 620.
[3] "The Herball," J. Gerarde, 1636, p. 1225.
[4] "Theatrum Botanicum," J. Parkinson, 1640, p. 1079.
[5] P. A. Matthioli, "Opera," 1674, p. 343.
[6] Bauhini, etc, "Historia Plantarum," 1651, tom. ii, p. 296.

bean, because that is the only legume of which men eat the pods and seeds together. It is even suggested that it may be Dolichos. He says that Brasevolus believes Ervilia to be the legitimate Ervum, but the more general testimony appears to be that it was a different plant, known to the Greeks as *Ochros*. One species of Orobus is spoken of as *Orobus semine obtuso triangulo*," and this answers well to our bitter vetch.

An interesting clue to the name Ervum is given. "*Quòd verò Erbum Avicennæ* (*Orobon Græci appellant nos Ervum*)." I may say that it appears to me that the name Rovi is also clearly derived and descended from Orobus, it being probably grown on some shores of the Greek Archipelago. Whilst this note has been passing through the press my attention has been called to the "Gardeners' Chronicle" of December 13, where it is mentioned that Dr. Whittmack recently exhibited some carbonized leguminous seeds, disinterred in the ruins of Troy by Dr. Schliemann, which, on careful examination, proved to be the seeds of *Ervum ervilia*.

A hundred years further back than Bauhinus, we meet with a mention of Ervum in the works of our first English botanist of repute,[1] William Turner, 1551, printed in black letter, with beautiful plates. He says: "Bitter fiche burdeneth the hede mych, the same eaten troubleth the belly. It draweth out bloude by the water. This pulse well sodden maketh oxen fatt. Ervum helpeth a mā to pis well. The same maketh a man haue a good colour." He is exercised as to the identity of the plant; scolds Fuchsius for misleading him, and gives for his engravings a species of *Lathyrus*, which he calls *Orobus Sylvestre*.

We now get back to the ancients. I have not Galen to refer to. Celsus[2] mentions both Lenticula and Ervum, and his editor, Dr. Milligan notes the first to be *Ervi lentis*, L., *varietas major*, the second *Ervum lens*, L.; but if the Latin "Ervum" be the same as the Greek "Orobus," this would be incorrect. Pliny,[3] writing soon after, mentions the twenty virtues ascribed to it, including its curing the bite of serpents—and of men—and also adds that if sown in March it is injurious to oxen, if in autumn it produces headache, but if sown in early spring it produces no bad results; but Pliny does not discriminate his facts. Dr. Bostock, his editor (Bohn's edition), says in a note that the

[1] "A New Herball," W. Turner, 1551, sheet p. iii.
[2] "A. Com. Celsi Medicinæ," etc., 1831, p. 197.
[3] "Natural History of Pliny," Bohn, 1856, vol. iv, pp. 51–451.

blade is said to be poisonous to pigs, and that the farina of *E. ervilia* is much advertised as a food; but Revalenta is now supposed to be the farina of *Ervum lens.*

Having now traced the history of the Rovi seed of the Archipelago up to the Orobus of the ancient Greeks, let me return to its poisonous properties. The ancients and those accustomed to use it knew that these could be eliminated or destroyed, by soaking in water, as is the case with other vegetable products which are poisonous in their natural condition, but which are made wholesome by water, by heat, or by both combined. This property may reside in the testa, which is the most bitter part, so that when decorticated, the seeds would be wholesome, but I am not aware if this be the case or not.

It has been stated that sheep may feed on the Rovi seed. On the other hand, pigs, notwithstanding they are such gross feeders, have delicate stomachs; it is said they cannot eat even haricot beens with impunity. They are probably modified by the artificial life they lead. Darwin[1] says that white sheep and pigs are injured by certain plants, whilst dark colored individuals escape. In Florida, the squatter selects the black members of a litter, as they only have a good chance of living—as the pigs eat the paint root (*Lachnanthes*), which colors their bones pink, and causes the hoofs of all but the black varieties to drop off.

At the trial it was stated that one of the witnesses offered the meal to some pigs who declined to partake of it; he kept them without food all day, and offered it again, but they still declined. Whether these pigs were black or not was not stated, but it would appear that their original aptitude for discernment in the selection of proper food had not been destroyed by their artificial mode of living—whatever their original physical capacity might have been. Light colored pigs certainly have a much more objectionable appearance than black; their skin is too much the color of the noble biped to look correct. One witness stated that she had given the meal to her pigs without harm, but that she had only given a small proportion with other food and had first well steeped it in accordance with the ancient custom.

I fear this subject has been treated too much at length, but it is certainly one of importance to the porcine world, and if an occasional cargo of Rovi seed is imported we do not know where it may find its way.—*Phar. Jour. and Trans.*, Dec. 20, 1879.

[1] Darwin's "Origin of Species," 1869, p. 13.

University of Michigan

COMPOSITION OF SOME VOLATILE OILS.

By Bruylants.

Oil of marjoram, obtained by distilling the flowery tops of *Origanum Marjorana* in a current of steam, is a yellowish liquid, when freshly prepared (sp. gr. 0·911 at 15°), but becomes brown on standing. It has a pungent smell and a hot, peppery and slightly bitter taste. It is a dextrorotatory, and has an acid reaction. When distilled, it begins to boil at 185°, but the temperature rapidly rises to 200°, and remains constant between 215 to 220°, a resinous mass being left in the retort.

By repeatedly fractioning the oil which passes over at 185–190°, a portion is obtained, boiling between 160–162°, consisting principally of a terpene.

The fraction boiling at 215–220° yields no portion having a constant boiling point, nor does it deposit crystals when cooled to — 25°. Its vapor density and analysis correspond with either laurel camphor or borneol. When distilled with phosphoric anhydride, it yields a mixture of cymene and terpene (b. p. 160–170°). When treated with acetic anhydride, it forms a compound (b. p. 230–235°), which with alcoholic potash yields terpene and potassic acetate. Chromic mixture oxidizes it with the formation of acetic and formic acids and laurel camphor.

Oil of marjoram is therefore composed of a dextrorotatory hydrocarbon, 5 per cent.; a mixture of dextrorotatory camphor and borneol, 85 per cent.; resin, 10 per cent.

Oil of lavender when freshly prepared is a colorless liquid, which becomes yellow on standing; it smells of lavender, and its taste is hot, camphorous and slightly bitter. It is lævorotatory, has an acid reaction, and sp. gr. 0·875 at 15°. It begins to boil at 185°, the temperature quickly rises to 190°, and the greater portion distils over between 195–215°. The first portion of the distillate consists of a mixture of acetic and formic acids, but contains no valeric acid. By repeated fractionation, a lævorotatory terpene (b. p. 162°) is separated, capable of forming a crystalline hydrochloride. The essence also contains a mixture of camphor and borneol; this mixture forms an acetate (b. p. 230°), which is decomposed by potash, yielding a terpene and potassium acetate. When it is distilled with phosphoric anhydride, a hydrocarbon is obtained, consisting for the most part of terpene, and containing also

some cymene. Essence of lavender consists of terpene, 25; borneol ($\frac{4}{5}$) and camphor ($\frac{1}{5}$), 65; resin, 10 per cent.

Oil of Spike.— This oil, obtained from *Lavandula spica latifolia*, is a colorless liquid, which in time thickens and darkens in color. It has an acid reaction, and sp. gr. 0·9081 at 15°. Its odor resembles that of lavender. Its composition is almost identical with that of essence of lavender, but, as it contains more hydrocarbon, it begins to boil at 170–175°. It is lævorotatory. Its composition is as follows: Terpene, 35; borneol and camphor, 55; resin, 10 per cent.—*Jour. Chem. Soc.*, Jan, 1880, p. 50.

BEHAVIOR OF CYMENE IN THE ANIMAL ORGANISM.

By Jacobsen.

As cymene has been prepared from normal propyl iodide and parabromotoluene, and as the author has shown that the hydrocarbon produced from parabromocumene and methyl iodide is not cymene, but an isomeride, no doubt would remain regarding the constitution of cymene were it not for two reactions. The first of these, noticed by Kraut and confirmed by the author, is that cymene is produced by the action of zinc dust on cymyl alcohol, and the second is the oxidation of cymene in the organism to cuminic acid, observed by Nencki and Ziegler. Both of these results are unfavorable to the theory that cymene contains a normal propyl group. In the present paper, the author gives an account of a repetition of Nencki and Ziegler's experiments.

The cymene was administered to a dog, and its urine, after evaporation, was acidified and shaken with ether. After distillating off the ether, the residue gave a copious precipitate with hydrochloric acid, which was found for the most part to consist of cuminuric acid, $C_{12}H_{15}NO_3$. The filtrate from this precipitate gave a distillate containing a little paraxylylic acid, showing that the cymene administered to the dog had contained a little pseudocumene.

Cuminuric acid melts at 168°, and volatilizes without decomposition. It is almost insoluble in cold, but comparatively easily soluble in warm water; it dissolves with the greatest readiness in alcohol; ether, how-

ever, dissolves it with difficulty. From water it crystallizes—(1), on addition of an acid, in nacreous scales, and (2) on slow evaporation, in large iridescent rhombic plates, without water of crystallization, and from alcohol, on evaporation, in radiated crystals.

The *barium salt*, $Ba(C_{12}H_{14}NO_3)_2.H_2O$, dissolves with some difficulty, and crystallizes from its hot solution in long right-angled plates or in flat needles, arranged in a fan-shaped form. The *calcium salt*, $Ca(C_{12}H_{14}NO_3)_2.3H_2O$, crystallizes in thin needles, and is also soluble with difficulty. The *ammonium* and *potassium salts* are very easily soluble, and crystallize in needles. The two latter salts give precipitates with salts of zinc, manganese, cadmium, magnesium, ferrous and ferric salts, copper, lead and silver; with mercuric chloride, it gives no precipitate, and with mercuric nitrate, a flocculent insoluble precipitate.

This cuminuric acid probably differs from that which Cahours prepared from cuminic chloride and glycolyl silver.

In order further to confirm the relations of this acid, it was decomposed by heating with hydrochloric acid; it split up into glycocine and cuminic acid, melting at 116–117°, and agreeing in all its properties with that described by others. It thus appears that cuminic acid is really a product of oxidation of cymene in the animal organism, but to remove all doubt, and further to connect cuminic and cuminuric acids, the latter acid was synthetically prepared from cymyl alcohol and glycocol silver. The product was identical in all respects with that separated from the urine.

If, then, there is conclusive proof that cumene contains normal propyl, and that cuminic acid contains isopropyl, then the preparation of cumene from cymyl alcohol with zinc dust involves the transformation of isopropyl into normal propyl, and, on the other hand, the formation of cuminic acid from cymene implies the opposite change.

In conclusion, the author draws attention to the fact that in his experiments the chief product was cuminuric acid, whilst in those of Nencki and Ziegler cuminic acid was formed. He also found the latter acid, but in very small amount.—*Jour. Chem. Soc.*, Jan. 1879, fr. *Jour. Phar.* [4], xxx, ps. 30–35, 139–141.

THE PRESERVATION OF ANIMAL AND VEGETABLE TISSUES.

Mr. Wickersheimer, anatomical preparator at the University of Berlin, has discovered a preserving fluid, by means of which dead animals may be preserved in contact with air without losing their natural appearance, softness and flexibility. Human corpses have by its means been kept for months, retaining during this time the flexibility of the joints and an almost lifelike color. The lungs of different animals which have been immersed in the liquid may be dried, resembling then a shrunken dark-brown body, which, by means of bellows, may be inflated as during life-time, and acquire then a fresh red color, closely resembling a fresh lung in appearance. Even old skeletons of various fishes which had been prepared with the cartilages belonging to them, had their natural flexibility restored after being immersed in the liquid for some time.

The liquid is also adapted to the preservation of small animals, and of fungi, algæ, flowers, fruits and other parts of vegetables.

The formula for preparing this liquid has been purchased by the Prussian government and published by order of the minister of education. The directions are as follows:

100 grams of alum, 25 grams of sodium chloride, 12 grams potassium nitrate, 60 grams potassium carbonate (Potasche) and 10 grams arsenious acid are dissolved in 3000 grams (3 liters) of boiling water; the solution is allowed to cool, filtered and to every 10 liters of the neutral colorless and inodorous liquid are added 4 liters of glycerin and 1 liter of methylic alcohol.

Anatomical preparations and animals which are to be kept in the dry state are immersed in the liquid, according to their size, for from 6 to 12 days, and afterwards dried simply by exposure to the air. The tendons, muscles, etc., remain soft and flexible, so that all natural movements may be readily made. Hollow organs like lungs, entrails, etc., are filled with the liquid before immersion, and subsequently inflated and dried. Smaller animals, like crabs, beetles, lizards, frogs, etc., also vegetables of which the natural colors are to be preserved, are kept in the liquid. Corpses and animal carcasses may be preserved by injection, for which purpose from $1\frac{1}{2}$ to 5 liters are required; on cutting the flesh then, even after years, it has the same appearance as that of recent corpses. The epidermis of injected bodies gradually becomes some-

what brown, but even this may be prevented by rubbing the skin with the solution, and keeping the body as air-tight as possible. For embalming injection is to be combined with immersion, and to be followed by wrapping the corpse in cloths moistened with the liquid and by placing it in well closed receptacles.—*Die Gartenlaube*, Nos. 22 and 50, and *Phar. Ztg.*, Oct. 29.

At a recent meeting of the Academy of Natural Sciences, Philadelphia, Mr. Wm. Barbeck directed attention to Wickersheimer's preserving fluid, and communicated the above formula. An interesting discussion arose, in which Messrs. Leidy, Roberts, Potts and Kingsley participated.

Dr. Leidy stated that the liquid which had been used by Dr. Horner and himself for years in the University for the preparation of anatomical subjects was almost identically the same as the Berlin mixture described by Mr. Barbeck. It was simply a modification of the fluid used in the West for the preservation of hams, arsenious acid being substituted for the starch of that mixture. Its use in the University had been attended with the most satisfactory results. In this liquid, we have been informed, methylic alcohol is always omitted, carbonate of potassium is considerably reduced in quantity, being merely sufficient for dissolving the arsenious acid, glycerin is added only for some special purposes, and the other ingredients are employed in somewhat different proportions from those given above. J. M. M.

ALEURONE.

Aleurone has recently become the object of a certain amount of interest, and was not long since the subject of a question at one of the University examinations. Nothing, however, has yet been published respecting it in this journal, and very little in this country. The following notes, compiled from various works, have been supplied by Mr. Marshall Leigh:

Aleurone grains were discovered by Hartig in 1855; their importance, however, was not generally acknowledged until Dr. Pfeffer published his researches in 1872 (*Jahrb. f. wiss. Bot.*, 1872). These researches are still the standard work in Germany, and contain a larger amount of reliable information than any other.

The reservoirs of ripe seeds, the endosperm and cotyledons, always

contain aleurone together with starch and oily matter. If the seeds contain much starch, as in the chestnut, the aleurone grains occupy the interstices and consist of minute granules; in oily seeds, however, the granules are found in the place of starch.

Their formation commences when the seeds have attained their last condition of ripeness and the funiculus become sapless; the seed loses water by evaporation, the mucilaginous mass in its interior gradually becoming firmer, and the grains of aleurone separate from the turbid matrix.

The origin of the grains is therefore simply a dissociation which arises from loss of water; on germination, the cells absorb moisture, and the aleurone grain again unites with the matrix.

The matrix surrounding the grain may be considered as the protoplasmic mass of the cell, in which water is replaced, on drying, by oil or starch.

The use of aleurone is to act as a reservoir of protein, in the same way as starch and oil globules are reservoirs of hydrocarbons, the protein being the source from which the protoplasm of the young plant is formed upon germination.

Occasionally the grains are seen to have a crystalline appearance, due to their enclosing crystals of oxalate of calcium; more frequently, however, they contain non-crystalline and clustered granules of a double phosphate of calcium and magnesium mechanically enveloped during the contraction of the protein.

Aleurone grains are absolutely insoluble in alcohol, ether, benzol or chloroform; they are mostly soluble in water, and can by that means be separated from the enclosed crystals or globoids.

Their chemical composition has recently been made the subject of observation by several chemists. In 1872,[1] Ritthausen exhausted the seeds by alkaline solutions and demonstrated the presence of vegetable caseins, such as legumin and conglutin.

In 1877,[2] Weyl published some observations which tended to show that the proteids existed as globulins, and that the caseins extracted by Ritthausen were the products of alteration caused by his alkaline solutions.

[1] "Die Eiweiss-Körper der Getreidearten," 1872.

[2] "Zeitschr. für Physiol. Chemie," 1877.

Mr. Sidney Vines[1] has lately contributed an article to the Royal Society which in many respects confirms Weyl's observations.

An extract of the seeds of blue lupin (*Lupinus varius*) in common salt was found to contain two proteids belonging to the group of globulins and hitherto known to occur only in animals: myosin, a constituent of dead muscle, and vitellin, a constituent of the yolk of egg; these two substances, vegetable myosin and vegetable vitellin, were found to have exactly similar reactions to the animal substances of the same name.

An aqueous extract of the seeds contained another proteid having all the properties of peptone, and agreeing very nearly with the *a* peptone of Meissner, or hemialbumose of Kuhne,[2] an easily decomposable peptone formed by the action of gastric juice on proteids.—*Phar. Jour. and Trans.*, Nov. 22, 1879.

The MIGRATION of PLANTS from EUROPE to AMERICA, with an ATTEMPT to EXPLAIN CERTAIN PHENOMENA CONNECTED THEREWITH.

By Prof. E. W. Claypole, B.A., B.SC. (London), of Antioch College, Ohio.

Paper read before the Montreal Horticultural Society, 1877.

Underneath the great wave of human emigration from the so-called Old to the so-called New World, underneath the noisy, busy surface tide that has swept westward from the shores of Europe to those of America during the last two hundred years, there has existed another and a less conspicuous wave, another and a less prominent tide of emigration. Westward in its direction, like the former, it has silently accomplished results that seldom strike the superficial eye, but yet are scarcely less in magnitude than those which have followed the advent of the white man to the shores of America.

I allude to that slow and noiseless immigration of European plants which has been going on for many years, and which probably commenced when the first European vessel touched our shores. Side by side with the displacement of the red man by the white man has gone on the displacement of the red man's vegetable companions by plants which accompanied the white man from his trans-Atlantic home. Not more completely have the children of the Pilgrim Fathers made themselves at home on the banks of the Charles and the Neponset, not more completely have the successors of Champlain and Jacques Cartier established themselves along the St. Lawrence, not more completely have the decendants of the aristocratic colonists of Maryland and Virginia appropriated the shores of the Chesapeake, than have the

[1] "Proc. Roy. Society," December 19, 1878.

[2] "Verhandl. d. Nat. Med Vereins zu Heidelberg," 1876.

homely weeds of England and France made themselves at home in the New World; established themselves on its soil, appropriated its fields, its gardens and its waysides. Nor have the older States alone been seized by these European invaders. The stream has flowed beyond them, and as no village or hamlet in the West is without its population of European descent, so too it is never without its plant population of European weeds. To the American, born and reared among them, these things have none of the significance which they possess to him who comes across the Atlantic, conversant with the flora of Europe, and anticipating a complete change of plant life as well as of place and scene after voyaging 3,000 miles. And yet I scarcely know which strikes the thoughtful stranger most, the resemblance or the difference between the Old which he has left or the New to which he has come. Differences, of course, there are, many and great, but in the face of the fact that the new country with its millions of inhabitants is using the same language and laws and customs as the old country he has so lately left, they are less striking. The same is true of the American flora. The writer will never forget the impression made on his own mind when soon after landing in America he set to work upon the botany of his new home. The summer, with its floral treasures, had gone by and the brilliant New England foliage told that winter was rapidly approaching. In the woods and shrubberies the falling leaves revealed new types of tree-life mingled with old forms well known in England. But on the ground, in the fields, along the waysides and fences were many well-known plants. Old acquaintances, friends and foes both, which he had years before learned to know—sometimes to cherish and often to uproot—when a boy in the old country. So far was the flora from being totally new that sometimes he was puzzled to know whether, on a given space, there were more strange or familiar forms around him. This result was quite unexpected and opened before him a new and very interesting field of observation and investigation, which has continued ever since to occupy at intervals his attention. The fact here mentioned—this migration of European plants into America—became all the more striking when, after a longer residence in this country, and a further study of its flora, he looked back to his earlier botanical studies in Europe and observed that this vegetable migration is almost entirely in one direction. In the midst of this rich flora, aliens by origin, but naturalized by the letters patent of time, he looked back to his old home and tried, but almost in vain, to recall American forms of plant life naturalized there. Scarcely a solitary specimen could be found to which the Old World, always chary of conferring its citinzenship upon foreigners, could be said to have given the rights to home. Whence comes this striking difference? Why is the Western World so hospitable and the Eastern so inhospitable to vegetable strangers? Is it that these western strangers do not claim naturalization? Do they feel their inability to make way against the crowded life of the East, and, therefore, fail in the intenser struggle for existence which marks newer and more highly developed Europe? The full answer to this question is at present impossible, and the writer desires this paper to be considered merely suggestive. Facts must be gathered before conclusions can be drawn. The field is so vast and the need of patient and continuous observation so great that many years may pass ere a solution

of the problem can be reached. "The harvest is plenteous but the laborers are few."

A few illustrations will show the kind of facts to which this paper is intended to call attention, and the writer's purpose will be fully served if its perusal should incite any who are familiar with European botany to note the occurrence of European species in different localities, and especially if it should lead any to inquire as to the cause which prevents the naturalization of others that can only be raised here under cultivation.

The careful observer will notice foreign plants in all stages of naturalization. Some are at present only cultivated in fields or gardens, others have escaped from the domain of the plough and the spade, and are maintaining a precarious existence among conditions not altogether congenial, and are liable to extermination at any time, by an unfavorable season. Others have a stronger hold and occupy the fence-corner or the wayside, while a number, bolder and hardier, have emerged from these sheltering nooks, and have begun an independent career among the indigenous vegetation, hoping, often in vain, to hold their own against the aborigines of the land. Not a few, more hardy still, or more adaptable in their nature, have altogether cut themselves loose from the cultivated field and the domain of man, have ventured out into open conflict with the denizens of the soil, and emerged victorious from the struggle. By crowding upon them, by stifling them, by appropriating their food, they have succeeded in ousting their antagonists, the rightful heirs, as by similar practices the white man has ousted the red man from his ancestral land, and both now occupy the country often to the exlcusion of all save the hardiest of the native tribes.

For example, the Scarlet Poppy (*Papaver dubium*), a weed so common in England that many a wheat field appears one sheet of glowing red when it is in full flower, must have come over to America many times in seed wheat, and is occasionally met with here in the fields, especially in Wisconsin and other northwestern States. Yet outside of these, it has never to our knowledge succeeded in propagating itself. It is quite scarce in America. The Giant Elecampane (*Inula helenium*), the Horse-heal and Scabwort of the leech, so renowned among the old herbalists as a remedy in complaints of the chest, is but scantily diffused. The writer has met with it in the east near Boston and in the Island of Montreal, and it is abundant in the west in some parts of Ohio and Indiana.

The English Groundsel (*Senecio vulgaris*), a favorite with the keepers of canary birds, but by no means in equal liking of the English gardener, has failed to establish itself in America. A few specimens may occasionally be met with near gardens, but it shows here none of that reproductive power that makes it in England one of the earliest weeds in the spring, and the latest in the fall.

The Salsify, or Vegetable Oyster (*Tragopogon porrifolius*), a native of the Mediterranean region, but established in a few places in the south of England, whence it was probably imported, is most likely of late introduction, and still on trial, not having found a place in Professor Gray's "Manual of the American Flora." The writer has only found it once near St. Catharine's, in Ontario, in considerable quantities, flowering and apparently bringing its seed to perfection.

The Henbane, a dangerous narcotic (*Hyoscyamus niger*), is sparingly diffused in some places. It may be found in tolerable abundance on Fletcher's Field, near Montreal, showing the same predilection as in England for dunghills and heaps of old bricks und mortar.

The Thorn Apple (*Datura stramonium*), a native of Asia and Europe, where it extends as far north as Sweden, is scantily met with in England, having escaped from gardens, where it prefers similar spots to those chosen by the Henbane. But it has been introduced into this country where, under a new name, "Jamestown (Jimson) Weed," it is only too well known. The American name seems to indicate that it was introduced or first noticed as a nuisance in the neighborhood of Jamestown, Virginia.

The Common Hemp (*Cannabis sativa*), so valued for its fibre, a native of the Caucasus and of the mountains of Northern India, only known in Western Europe in cultivation, and doubtless early brought here for economic purposes, has run completely wild, and may now be found in waste land near human dwellings, from the streets of Montreal and Boston to the west of Ohio, and probably farther still.

The Grape Hyacinth (*Muscari botryoides*), and the Star of Bethlehem (*Ornithogalum umbellatum*), both common English garden flowers, may be occasionally found in the vicinity of Montreal, as if longing, yet fearing, to strike for freedom from the control of man in their new country.

The Corn Cockle (*Lychnis githago*), so mischievous in English wheat fields, is tolerably common here in similar places, but has not succeeded in establishing itself outside of the protection of man. The same may, in the northern districts, be said of the common Red Clover (*Trifolium pratense*). In spite of its deep tap root and rank growth, it is unable to bear the cold, and an occasional severe winter will exterminate it if unprotected, even in cultivated fields. Its near relative, however, the White Clover (*Trifolium repens*) was introduced in early days, and called by the Indians, "White Man's Foot." Longfellow sings in the story of Hiawatha:

> "Wheresoe'er they tread, beneath them
> Springs a flower unknown among us—
> Springs the White Man's Foot in blossom."

This is much more hardy and seldom yields except to the severest frosts. It overruns field and wayside, fence-corner and common, holding its own against even the aborigines, and strangling them out by its tangled perennial roots. Early in the spring it secures such headway that larger and coarser plants are compelled to give way. Its flowers afford the honey bee so rich a harvest that its seeds are surely fertilized, and this double method of reproduction by root and by seed gives it such an advantage in the struggle for existence that it has spread rapidly over the country, and many an American common is as white with its flowers as is an English lawn with daisies. It is worthy of notice that similar results have attended the introduction of this plant into New Zealand. There also it has run wild, and is said to be pushing out some of the native species, among others the hard and stiff New Zealand flax (*Phormium tenax*), which is said to be unable to hold its ground against the strangling roots of the White Clover.

The English Buttercup (*Ranunculus acris*), beloved of English children and poets, especially of the school of Wordsworth, has overrun the northeast, and the writer

has met with it even in the Canadian backwoods, where only a trail through the bush existed, carried doubtless in the hay taken thither to feed the horses and oxen of the lumbermen when driving logs in a Canadian winter.

The Barberry (*Berberis vulgaris*), with its graceful drooping stems and pendant racemes of bright yellow flowers and scarlet fruit, followed the pilgrims to Plymouth Rock, and like them has struck its roots deep in the bleak hill of New England, until now it is far more common in the neighborhood of Boston than in any part of England with which the writer is acquainted.

Every one who has owned or worked a garden in America has made the acquaintance of the ubiquitous Purslane (*Portulaca oleracea*), so fondly mentioned by the author of "My Summer in a Garden" as "pusley," one of his pets which stuck to him so closely that he could not get rid of it. This, the only *valuable* (start not, American gardener, it is even so) plant of its order, is cultivated as a salad and pot-herb; but, transplanted into our soil and under our skies, it has squatted on the land until nothing save constant watchfulness and hoe can prevent its complete monopoly of the garden. It occupies here the place of the sow-thistle in England. Both break off at the surface of the ground as soon as an attempt is made to pull them up, and when the gardener's back is turned both send out a new crop of leaves, flowers and seed, to punish him for his assault. The writer would like to suggest to the Horticultural Society of Montreal the desirability of offering a prize for the best illustrated essay on the means of turning this European immigrant to account in the Canadian and American kitchens. Possibly the surest way of getting rid of it would be to make it useful. Useful plants are seldom so abundant as to be a nuisance.

The Common Water Cress (*Nasturtium vulgare*)—when, how, and by whom introduced we know not—is now so abundant in some places that one is almost tempted to look upon it as a native. Many of the streams of New York and of southwestern Ohio are as thickly set with it as are any of the water-courses in old England.

The Common Parsnip (*Pastinaca sativa*) has run wild in America in fence-corners and along railway banks near Montreal aud other places.

The Hemlock (*Conium maculatum*), of Socratic infamy, has taken possession of certain spots, as it does in Europe. The writer has seen acres of it along the banks of the White River at Richmond, in Indiana.

The Ox-Eye Daisy, or White Weed of New York (*Chrysanthemum leucanthemum*), has crossed the Atlantic with hay-seed and so completely monopolized many of the meadows in the Eastern States that they more resemble snowfields than hayfields when the plant is in blossom. It is slowly spreading west and south, and last summer the writer found it in Ohio close to the State line of Indiana, appearing in full vigor and of large size.

The Tansy (*Tanacetum vulgare*), valued by herbalists as a tonic, is not uncommon. The crimped variety (*crispum*) grows near Montreal.

The Chicory (*Cichorium intybus*), with its stiff stem and lovely but evanescent azure blue flowers, wild in England and well known to manufacturers of coffee (the genuine article!) is now one of the wild flowers of the Island of Montreal.

The Great Mullein, or Flannel plant (*Verbascum thapsus*), common in waste ground in Europe and Asia, is more common here than in England in similar situations, but never so far as the writer is aware on ground that is truly wild.

The Yellow Toadflax, or "butter and eggs" (*Linaria vulgaris*), has been introduced with crops, and now shows its two-tinted blossoms in gardens and on waysides, and once in is with difficulty eradicated.

The Catmint or Catnip (*Nepeta cataria*), a native of England and southern Europe, is now as common in America. The Burdock (*Arctium lappa*) is another importation from the Old World, "who left his country for his country's good," and has proved like many others who did the same no blessing to his adopted land. Moreover, he has left so many of his kith and kin behind him that his absence is not noticed. Every boy knows the hooked burs or seed vessels of this plant, which cling so closely to the clothes of men, the fleeces of sheep, and the manes of horses that its rapid extension is inevitable.

The Great Celandine (*Chelidonium majus*), with its bright yellow flowers and orange juice, may be found on the eastern seaboard and near dwellings in the inland States.

The Shepherd's Purse (*Capsella bursa pastoris*), a common weed in England, is common in Canada and the States.

The Bladder Campion (*Silene inflata*) spreads its white petals by the roadside, while its little congener, the Mouse Ear (*Cerastium vulgatum*), grows ensconced, as in Europe, in gardens and in fields.

Our list is long enough, but a few remain too common to be completely omitted. Every street and road in many parts of the country is covered with a soft summer-green carpet of the little insignificant Knot-grass (*Polygonum aviculare*). It forms a substitute for grass where grass cannot find a foothold and keeps its ground in defiance of dust and traffic and heat.

Not a few of the European grasses, too, imported for meadows, have escaped from cultivation and succeeded in establishing themselves more or less firmly as occupants of the soil. The little Annual Meadow Grass (*Poa annua*), the Timothy (*Phleum pratrense*), the Fox-tail (*Alopecurus pratensis*), the Redtop (*Agrostis vulgaris*), the White Bent (*Agrostis alba*) have become perfectly wild in different places. The Cocksfoot (*Dactylis glomerata*), the Couch or Quick grass (*Triticum repens*) have been less successful. The former apparently dislikes the hot sun of America, though it does well in the shade. The so-called Blue Grass, more properly the June Grass (*Poa pratensis*), of the famous Kentucky pastures, has almost monopolized the ground in many places, and the Chess or Cheat (*Bromus secalinus*) constantly cheats the American farmer into a more than Darwinian belief in the transformation of species, not, by the way, upward, but downward. The Purple Finger Grass (*Panicum sanguineum*), an immigrant from Southern Europe, found but not native in England, may be gathered by the wayside in the Eastern and Middle States. Finally, in some parts of the country the hay betrays to the European by its scent the presence of the Sweet Spring Grass (*Anthoxanthum odoratum*), so well known as giving much of the finest of the fragrance to an English hayfield.

In thus noting instances of vegetable immigration from Europe to America,

another side of the question must not be overlooked. Many common English plants have totally failed to secure a foothold here. The seed of the English daisy must have come over in almost every case of grass-seed that has been imported; yet it has not become naturalized in America The only instance with which the writer is acquainted of its lasting for several years in a lawn, as in England, occurred in the immediate vicinity of Montreal, and was communicated to him by a friend in that city. It would therefore appear that the heat of summer rather than the cold of winter is the barrier to the establishment in the New World of the "wee modest crimson-tipped flower," so familiar to every British eye. Equally "conspicuous by their absence" are the Primrose and the Cowslip, the flowers of childhood in the old country. Many other instances of this kind might be adduced, but the converse side of the problem now claims attention.

It is singular that while so many European species have forced their way into possession of the American soil, the cases of counter migration are exceedingly few—so few that they may be counted on the fingers. It appears as if some invisible barrier existed preventing passage eastward, though allowing it westward. One or two species may be named which, as exceptions, bring the general truth of this statement into stronger light. The Canadian Fleabane (*Erigeron Canadensis*), a native of North America, "is now established in nearly all temperate and hot countries, and occasionally appears so in England." [1] The Annual Fleabane (*Erigeron annuus*), though not in England, has become wild in some parts of Europe. Add to these two the so-called "Water Thyme" (*Elodea Canadensis*), and we have all the conspicuous examples with which the writer is acquainted of the eastward migration of American plants to Europe and their naturalization there The last named plant was first observed about 1847 in the northern and midland counties of England and the south of Scotland, in Yorkshire, Leicestershire and near Berwick and Edinburgh. [2] How it was introduced is not known. Thence it spread until in about ten years many of the slower streams were almost clogged with it, and the writer well recollects that it was then difficult to row on the upper and middle Thames in consequence of the accumulation of this weed. Fears were even entertained that it would form a serious impediment to inland navigation. But in a short time the evil diminished, and after a few years, though still present, the quantity in the rivers became insignificant, and no inconvenience is now caused by its presence.

Such facts naturally suggest the question: Why are these things so? What invisible door bars the passage of the American flora to Europe, but admits the free passage of the European flora to America? One reply will naturally occur. Seed is mainly brought from Europe to America, and thereby a favorable chance is afforded for introducing the seeds of European weeds. This is so; and to this cause, doubtless, is due the immense number of introduced plants. But, if European seed is largely brought to America, American crops go much more largely to Europe; and it would be absurd to suppose that any crop gathered from the half-cleared and weedy fields of this country could be sent thither without, at the same time sending in abundance the seeds of our native weeds. All the ill weeds that

[1] Bentham's "Handbook of the British Flora." [2] *Ibid.*

grow in Canada or the States must, ere now, have been many times exported to the mother country. Yet they do not appear. It may be replied that the greater part of the corn crops are destined for the mill and not for the land, and that in this way their chances of propagation are largely diminished. Making all due allowance for this, should we not look for a rank crop of American weeds springing up around the mills from the cleanings and the waste? Yet such is not the case. With all the millions of bushels, moreover, that go to England for feeding purposes, and are never ground, there is the same result. The weeds no more take root and run wild than do the wheat and maize among which they cross the Atlantic. And when, in addition to this, we consider that there has been for two centuries an organized and regular introduction of American wild plants into European botanic and flower gardens, might we not reasonably expect to see at least a few of them, or of others which must have accidentally accompanied them, spreading outside of the limits of these gardens, and becoming naturalized in Europe? Yet nothing of the kind has occurred. Neither the rank and abundant Ragweed (*Ambrosia*), nor the widely diffused Golden Rods (*Solidago*), nor the Protean Asters (*Aster*), nor the wayside Pepper Grasses (*Lepidium*), nor the prolific Sumachs (*Rhus*), nor the clinging Burr-marigolds (*Bidens*), nor the ubiquitous and striking Milkweeds (*Asclepias*), have succeeded in naturalizing themselves in England. Even where a genus contains species on both sides of the Atlantic, as is the case with the Houndstongue (*Cynoglossum*), we find that the English species—the common Houndstongue (*C. vulgare*)—has migrated westward, and become so common near Montreal and almost everywhere in the Eastern and Midland States that Professor Gray can term it "a familiar and troublesome weed"; while at the same time, the common American species, or Beggar-lice Houndstongue (*C. Morisoni*), which the same writer brands as "a common and vile weed," is completely unknown in England.

Some may be inclined to urge that the comparatively cool English summer may not afford sufficient heat to perfect and ripen the seed, which the fiercer sun and continental climate of Eastern America can easily mature. This may account for the inability of some American species to sustain themselves in England, but it is evidently far from sufficient to solve the whole problem. Many of these plants can perpetuate themselves in the short, cool summer of New England and Lower Canada, and we might therefore reasonably expect, even if want of summer heat excluded them from England, that they would find a congenial climate somewhere in the warmer countries of Southern Europe. But not in England only, but throughout Europe, the absence of American species is remarkable. Difference of climate seems insufficient as the only or the chief factor in the solution of the problem, and we are compelled to look farther.

Nor can it be urged as an objection that European weeds alone have come in. Without at present defining a weed, the reply is obvious that American weeds have not gained a foothold in Europe. It is not to be anticipated that large, conspicuous and slow-growing plants, such as forest trees, or highly developed and cultivated forms, such as garden-flowers, will often run wild. The former require too long a time to grow and propagate themselves, and are subject to too many dangers, while the latter are only maintained at their high standing by constant and careful culti-

vation. It is only, therefore, among the smaller and more insignificant plants that the facts here detailed can be looked for, and accordingly of such our list altogether consists. It may be that the forest trees of Europe, or some of them, will one day grow wild here. But the life of a tree is so long, and its growth so slow, that the experiment cannot be said to have been yet made. So far from planting and propagating European trees, men are bent in most parts of the country upon destroying their own. The present generation has not outgrown that insane hatred of trees which possessed the past, and was perhaps an almost unavoidable result of the severity of their struggle with the primeval forest. Timber is still contemptuously termed "lumber." No respect is felt for it, and consequently no European tree, if trying to run wild, would stand much chance of life during the attempt. A high authority on forest trees in this country has informed the writer that in his experience some European species have grown better than the American species of the same genus—that the English beech and larch, for example, surpassed the native beech and the tamarack. Time alone can prove this point.

The comparison, therefore, must be made, and can only be made justly, between the weeds of the two continents, or plants which come very near them and may be called almost weeds. By the term "weed" we mean those plants to which the surroundings are so suitable that they increase and multiply, year after year, more rapidly than others by which they are surrounded. Entering into details, the soil affords them the nourishment they need; the spring frosts do not kill them, or they bud and grow only when this danger is passed; they ripen their seed in quantity sufficient before the winter sets in; the heat of summer does not scorch them, nor the cold of winter destroy their roots or seeds; they are not so much injured by insects as to preclude their coming to maturity; while their flowers are sufficiently visited by insects to insure the fertilization of their seeds, or else they spread so rapidly by underground stems as to render seed unnecessary. Granted all these conditions, and we have weeds of the first order, while the failure of any one or more of them may reduce such a weed to the position of a very harmless and comparatively rare plant. In fact, the great abundance of a weed or wild flower in one year, and its scarcity in another, is often due to its lacking one or more of these requisites. Weeds are the *homely* plants of a country, using the word in its true and original sense. A plant that is perfectly comfortable in its surroundings, if possessing considerable power of reproduction, becomes master of the situation, and is a *weed*.

The weeds of different countries must therefore differ because their conditions differ. For the same reason the weeds of different ages must also differ. Climate changes as geological time passes by, and all plants are not able to adapt themselves to these changes. It is frequently the case that a man placed in new circumstances is quite unable to adjust himself to them. His nature is not sufficiently plastic. So with plants. A wide range in time or space, with changing conditions, can only be enjoyed by a plant whose nature is plastic or capable of change. Place a weed of stiff or unyielding nature in less favorable conditions and it cannot adapt itself to them. It becomes unhealthy and lingers on, as it were, by sufferance among stronger neighbors—no longer a weed—or it speedily dies out. But a weed possessing a

plastic nature—one capable of being moulded by and to its new surroundings—ere long adapts itself, if the change is not too great or sudden, to its new situation, takes out a new lease of life, and continues in the strictest sense *a weed*.

Is it not possible that some such cause as this may lie underneath the facts we detailed in the earlier part of this paper? The true and full explanation of the transfer of European species to America should at the same time explain the absence of American species from Europe. But the partial causes already alluded to fail to do this. There is a residual effect for which they do not account. May it not be true that the plants of the European flora possess more of this plasticity, are less unyielding in their constitution, can adapt themselves more readily to their surroundings, and thus secure their continuance in the New World? And may it not be the lack of this plasticity in the American flora which incapacitates it for securing a foothold and obtaining a living in the different conditions of the Old World? Under the care of the gardener they grow and embellish the gardens and conservatories of Europe, but without this care they speedily fail and die.

To point out the physiological basis of this property of plasticity is at present and will probably long remain impossible. But that such a property exists in both the animal and vegetable kingdoms is beyond a question. It is the secret of that variation which so strongly marks some species, while its absence is the cause of that fixedness which characterizes others. It is the secret of that quick response which some plants make to a change of conditions, and whereby they gain fresh vitality at the cost, it may be, of some slight modification of structure. Its absence, on the contrary, causes that indifference or resistance which characterizes others, and which is almost always followed sooner or later by the extinction of the resisting species.

Though, however, the indication of the exact physiological basis of this plasticity of constitution is as yet beyond our reach, it seems possible to point out one fact which not improbably has had some share in reducing the plasticity of the American flora. To approach a single short step nearer to the object of our quest, when that object is at present unattainable, is so much ground gained We are all familiar with the effects of habit upon ourselves. We all know how easy habitual actions become; how strong is the tendency to perform them when the conditions recur under which they are usually performed, and how unwillingly we deviate from our daily course after following it for years. To this one fact—the power of habit—is due the uncomfortable, unsettled state of most men who make some great change in their outward surroundings late in life. Few who emigrate in old age ever become quite reconciled to their new home. The habits of many years have so moulded them in body and mind, and set them so firmly in their mould, that the plasticity they may have once possessed is gone, as bricks dried and burnt have lost the pliancy they possessed when in the form of clay. Of the physiological cause of this fact we know nothing, but the fact no one can doubt. Experience shows us that habit is no less powerful in plants than in animals. What a plant has been in the habit of doing that it will incline to do again. The physical organization of the plant, acted upon by the conditions that surround it, produces its habit. The longer these remain unchanged the longer do its habits continue, and the longer its

habits continue the more firmly, we must infer, do they become ingrained in its physiological structure. Thus do habit and organization act and react on each other. Each may be changed, but all such changes are slow, and we may easily, in view of these facts, believe that after many years or ages of unchanged conditions a plant may become (as many an old man becomes) so firmly set in its habits, so rigid in its nature, as to resist modifying influences with all the energy it possesses, and rather die than change. This is what we mean by losing its plasticity. A plant accustomed in the climate of England to occupy two months in perfecting its seed may, if suddenly removed to another country, continue its former practice or it may not. In the former case, if the new climate does not afford the time required, the seed is not ripened and the species fails. If, however, the plant can adapt itself to the shorter season, and ripen its seed earlier, it may survive. But for this result a high degree of plasticity is needed. On the other hand, if the change of climate be made more slowly, the habits and organization of the plant may keep pace with it, and with even less plasticity than in the former case, the species may survive.

We may advance at least one step farther. If these views on the relation of habit and organization to time be correct, have we not a possible, though at present a rude, gauge for both? If the strength of habit increases with time, may we not roughly measure that strength by the length of time during which the habit has prevailed? And further, if the plasticity of plant nature diminishes and its rigidity increases with the duration of a habit, may not this duration in like manner be employed to some extent as a gauge of rigidity; that is of want of plasticity? We stand here on new and difficult ground, and any deduction must be tested severely before reliance can be placed upon it. The confines of geology and botany, the place where the two sciences march together, is almost unknown territory over which science is just beginning to extend its conquests. The tracing of earth's existing flowers into her past, the genealogy of plants, is a subject closely connected with that other subject—the descent of species—which now so sorely divides the leaders in natural science. Nevertheless, we propose in the concluding portion of this paper to grope out into this unknown land where the light is so dim, and try to feel our way along the clue indicated above, in the hope of finding some link that may connect the apparently inconsistent facts we are attempting to reconcile—the abundant westward migration of plants from Europe, and their scanty eastward migration from America.

Have we then, at the outset, any reason to believe that the North American flora possesses less plasticity than the European? Let us apply the gauge just mentioned and see the result—the gauge of time. We are in the habit of calling America the "New World." Botanically, and also, we may add, zoologically speaking, America is the older and Europe the younger. Europe passed ages ago through the stages of plant life which America exhibits to-day. The trees and plants of America, like most of her native animals, belong to old-fashioned, antiquated types—types that have passed away from European life and now lie entombed beneath its surface in he records of geology. If we turn for a moment and consult these buried registers of births and deaths, we find that in ages past the existing families of America were living in Europe. Name after name may be turned up, long struggle. Our country swarms with the weeds of Europe, while our own weeds shrink from the conflict both in Europe and at home.

unknown and long forgotten, where once it lived in the Eastern World, but faithfully recorded in these volumes, and yet surviving through American relatives in the West. The woods of Europe once contained trees identical with those now growing in the forests of North America. The miocene formations of Switzerland have yielded to the labor of Prof. Heer, of Zurich, a rich harvest of fossil plants amounting to at least 900 species. The descriptions and illustrations of these may be found in his great work on the "Tertiary Flora of Switzerland" (1855–'59). These tertiary beds lie in the great valley between the Jura Mountains and the Alps, and bear the name of the Molasse. From other parts of Europe also, and from high northern regions, similar fossil remains have been brought to light, and our knowledge of the European tertiary flora, though still very fragmentary, is in a condition to admit of fair comparison with the existing floras of the world.

Space will not allow a minute enumeration of examples; nor is it necessary for the purpose of establishing the assertion made above concerning the relationship of the living plants of America to the fossil tertiary plants of Europe. A few illustrations of the better known forms will suffice. Among the relics obtained from the beds at Oeningen are the leaves of a maple tree with flowers and seed. Europe possesses several maples, but these fossils resemble none of them, while they can scarcely be distinguished from the common red maple (*Acer rubrum*) of North America. Europe also possesses her Plane tree (*Platanus orientalis*), but the fossil plane of Oeningen is not identical with this. It much more closely resembles the Western Plane or Button-wood (*P. occidentalis*) of America. The Miocene Vine of Oeningen is of an American type, and very closely allied to the Muscadine or Southern Fox Grape of Maryland and Kentucky. A Fan Palm (*Sabal major*) has been found in the Swiss Miocene. It belongs to a genus now known only in America, and found in the Southern States. The genus Taxodium, to which belongs the beautiful Bald Cypress (*T. distichum*) of the Southern cedar swamps, was once represented in Europe by a species so like the American that its remains can be with difficulty distinguished. The Tulip Tree (*Liriodendron tulipiferum*) is the queen of the forest in the Middle States. It Europe it has passed away, but its remains are entombed in the Swiss Miocene. Another of these tertiary fossils—an elm-like tree—was at first only distinguished from the American Planer Tree (*Planera aquatica*) by Prof. Heer on account of the size of its fruit; but on seeing the specimens at Kew he admitted that no distinction could be drawn between them. The Giant Redwood (*Sequoia gigantea*) lingers in California, dependent upon the protection of man to save it from extinction. Though now replanted and flourishing in European shrubberies, it passed away from that continent ages before the woodman's axe or the more murderous forest fire had begun to destroy. Of somewhat more recent date, but yet fossil, is the European Sweet Gum Tree (*Liquidambar Europæum*), a species closely allied to the Sweet Gum of the Eastern and Middle States of America (*L. styraciflua*), but the genus is now totally unknown in Europe. Again, the Black Walnut of America (*Juglans nigra*) lies buried in the Miocene beds at Oeningen, and Europe has imported the far superior walnut from Persia to supply its place. The writer has been informed that the late Prof. Agassiz, on his arrival in this country, applied to a gentleman well known for his

study of the American forest trees, and asked for an introduction to the Hickory family of America, remarking that all the members with which he was acquainted in Europe were fossil in the tertiary beds of his native land. Lastly, no fewer than eight species of smilax, a genus scarcely known in Europe, but abundant in America, have been found in the Miocene of Switzerland.

We may here remark in passing, that anyone desiring to see for himself the close resemblance between the European fossils and their living American representatives can do so by paying a visit to the Agassiz Museum at Cambridge, where, in one of the upper galleries, may be seen a collection which has no equal or second on this side of the Atlantic.

It is just necessary here, in order to avoid leaving a flaw in the argument, to state that many of these species have been discovered in beds of equal or greater age in this country. It is therefore impossible to urge that they may have passed from Europe to America so lately that changes have not yet had time to develop themselves. On the contrary, some geologists are inclined to maintain that they existed in America before they appeared in Europe. At all events, we are warranted in asserting that during the Miocene age trees of the kinds named grew in Europe and America, as well as in Greenland and Spitzbergen and other points in the far North.

We do not propose here to investigate the causes of these changes. It is sufficient for our purpose to maintain the fact, that during tertiary geological times the European flora has changed, and largely changed, while the American flora has remained stationary, or nearly so. Plants which have changed in this interval thereby show an ability to change—a plasticity—which may be shown again should occasion arise. Plants which have not changed during the same interval show no proof of possessing the same plasticity. Moreover, if the principle is true that long existence without change strengthens the habits or increases the rigidity of the species, it is a necessary inference that the American flora, or so much of it as has existed during this long interval unchanged, must be less plastic than the present European flora, which has, during the same interval, been so largely modified. So many ages of persistence in type cannot well be without effect. Little as we yet know of geological time, we cannot estimate the age of the Swiss fossil plants at less than 500,000 years, and it may well be twice as much. This would place the European flora just as far later or newer in age and in development than the American—would give it the advantage of so many years of slow change—and may be supposed, in some degree, to have maintained or developed that plasticity to the possession of which we incline to attribute its ascendency over the native American flora. On the other hand, the native American flora, living unchanged through all these 500,000 years, may well have lost some of the plasticity it perhaps once possessed, and have become comparatively rigid, so that it is to that extent unable to adapt itself suddenly to the changed condition of Europe at present. It cannot therefore compete with the more plastic and more highly-developed forms which it meets in the Eastern World; nor can it, in all cases, even hold its own against them on a soil and in a climate where it has dwelt for so many ages unmolested. The younger plant-life of Euope, like the white man, is more than a match for the old-fashioned life of this so-called New World of America, and the weaker fails in the

Summing up the argument, in conclusion, we have pointed out:

1. That many of the weeds of Europe have migrated to America.

2. That many of these have become so thoroughly naturalized here that they prevail over some of the plants native to the soil.

3. That only two or three American weeds have crossed the Atlantic and become naturalized in England.

4. That the difference of climate and the conditions of mutual commerce do not fully account for this marked difference in the migrative power of the two floras.

5. That in the Miocene era the European and American floras were very much alike.

6. That since that era the European flora has been vastly altered, while the American flora still retains a Miocene aspect, and is therefore the older of the two.

7. That this long persistence of type in the American flora may have induced, by habit, a rigidity or indisposition to change in the American flora.

8. That the changes in the European flora since the Miocene era betray a plasticity of nature, or power of adapting itself to circumstances of which the American flora gives no sign.

9. That in this view the European flora is better able to adapt itself to the strange climate and conditions—that is, to emigrate—than the American flora.

10. That being thus more plastic or adaptable it succeeds in the New World, while the less adaptable American flora fails in the Old World.

The writer wishes to add that in the above paper he has brought forward chiefly the instances of migration from England to America and *vice versâ*. A few other American plants might be found naturalized in other parts of Europe on closer examination, but the list, at best, would be exceedingly scanty.[1]—*Pharm. Journ. and Trans.*, Nov. 22, 1879.

VARIETIES.

Fucus Vesiculosus (Anti-Fat).—Now that this remedy is so universally used for the reduction of obesity, it may interest the profession to recall to mind another use found for it in 1826.

Laennec having observed that on the coast of Brittany, where the air is more humid, but at the same time milder and more equable than in the interior of France, the number of phthisical patients was comparatively small, and having also seen that young men from Brittany became consumptive during their sojourn in large cities, and recovered on returning to their native province, came to the conclusion, that the peculiar atmosphere of the sea coast had something to do in these results.

He, therefore, tried to imitate it, in some measure, by placing near the beds of the patients certain fresh marine plants. He brought together, into two small wards, a number of phthisical patients, and surrounded their beds with the *fucus vesiculosus*,

[1] *Rudbeckia laciniata* has established itself in many parts of Central Europe.—See "Amer. Jour. Phar.," 1872, p 107.—Editor.

causing them to drink also an infusion of the same plant. None appeared to suffer from this mode of treatment, as long as the fresh *fucus* could be procured.

The cough became less frequent, the breathing less confined, the expectoration less in quantity. In the greater number the hectic fever ceased, and *the progress of emaciation was arrested.*

In 1826 the *fucus* caused fattening and arrest of emaciation; now it produces emaciation, or rather it reduces bulk, according to testimony of many writers, who perhaps do not take into account the diet they adopt, or the hygiene they follow, as being a more important factor in the matter.

We do not hear now of *fucus* in consumption. In fifty-three years' time shall we hear of Anti-Fat?—*Med. Press and Circ.*, Dublin.

Helianthus annuus.—An infusion of the stem of the sunflower has been successfully used as a remedy for intermittent fever for three years by P. Filatow. The fresh or dried stems are cut into small pieces and macerated with 8 parts of whisky for three or four days. This tincture is administered in the dose of a tablespoonful three times daily for adults. The author claims to have derived almost fully as satisfactory results from the use of this exceedingly cheap preparation as from the very expensive quinia.—*Pharm. Ztschr. f. Russl.*, 1879, p. 624, from *St. P. Med. Wochenschr.*

Preparations of Thymol.—Thymol answers admirably well for antiseptic washes in the proportion of 1 part to 20 parts of glycerin and 100 parts water; the mixture does not injure surgical instruments, and is an excellent substitute for carbolic acid, being more efficacious without possessing such an unpleasant odor.

Thymol glycerole consists of 1 part thymol and 100 parts starch glycerole.

Thymol lotion is a solution of 1 part thymol in 4 parts of alcohol

Thymol salve consists of from 1 to 4 parts of thymol and 100 parts of lard.

—*Pharm. Centralh*, 1879, p. 428, from *Ztsch. d. Allg., Oest. Ap. Ver.*

Transparent glycerin soap is made by melting together 500 grams of tallow, 500 Ceylon cocoa oil, 250 castor oil, 50 palm oil and 500 glycerin, and, when the mixture reaches 70 to 75°C, adding gradually 650 of soda lye (spec. grav. 1·385), stirring constantly; as soon as saponification is completed, which is usually the case at the expiration of a few minutes, the mass is removed from the fire, 600 grams of 96 per cent. alcohol are added, and the mixture is stirred until it is clear and until it will congeal on a spatula, when a solution of 100 grams of sugar in 50 of water is added, the mixture is perfumed and poured into moulds.—*Pharm. Ztg.*, 1879, p. 719

Removal of Silver-Nitrate Stains.—Instead of potassium cyanide, Dr. H. Kaetzer uses a solution of 10 gzams ammonium chloride and 10 grams corrosive sublimate in 100 grams distilled water, which must be kept in glass-stoppered bottles. It will readily remove the stains from the skin, linen, wool and cotton, without injuring the fabric.—*Pharm. Ztg.*, Dec. 10, 1879, p. 767, fr. *Neueste Erf. u. Erfahr.*

New Cement for Filling Teeth.—It consists of the pyrophosphates of calcium and barium, with that of zinc or magnesium, and is made by Rostagni by fusing together in a crucible calcium phosphate and zinc phosphate, pouring out the mass, powdering, dissolving in dilute phosphoric acid and evaporating to a syrupy consistence. The liquid is mixed with a powder prepared by triturating 3 kilograms zinc oxide with from 5 to 50 grams boracic acid and a little water; the mass is dried, heated to redness for a few hours, and, after cooling, is powdered. For use the powder is formed into a paste with water.—*Pharm. Ztschr. f. Russl*, Nov. 13, 1879, p. 693, fr. *Dingl. Journ.*

A white tooth powder, which turns red when moistened, is made by reducing to a fine powder cochineal, 15 grains, and alum, ½ drachm, and mixing with powdered orris root, 1 ounce; cream of tartar, 10 drachms; carbonate of magnesium, 1¼ drachm; powdered cuttle-fish bone, 5 drachms, and oil of rose, 5 drops.—*Pharm. Ztschr. f. Russl.*, from *Ztschr. d. Oest. Ap. Ver.*

Anilin Inks.—Dr. Siemens publishes the formulæ:

Red.—Dissolve 1 part diamond fuchsin, soluble in water, in 150 or 200 parts hot water.

Blue.—1 part "bleu de nuit" (bleu de Paris) to 200 or 250 parts hot water.

Violet.—1 part blueish-violet analin in 200 parts water.

Green.—Dissolve 1 part iodine green in 100 or 110 parts hot water; it writes bluish-green. If a yellowish-green lustre is desired, a little picric acid is added.

Yellow.—(Anilin is not advisable.) 1 part picric acid in 120 or 140 parts water.

Black.—1 part nigrosin, soluble in water, is dissolved in 80 parts water.

These anilin inks are very bright, never precipitate the coloring matter, flow readily, dry quickly, do not mould, and can be readily liquefied again when dried up. They should not be made too concentrated, should not be used with a new pen, and require dilution with water in case the writing has a coppery lustre. If an addition of gum is desired, which is generally not necessary, 1 part dextrin may be added to 100 parts of ink, but never gum arabic.—*Pharm. Ztg.*, Dec. 3, 1879.

SIXTH DECENNIAL PHARMACOPŒIA CONVENTION.

By virtue of authority devolved upon me as the last surviving officer of the Pharmacopœia Convention of 1870, I again call the attention of "the several incorporated State medical societies, the incorporated medical colleges, the incorporated colleges of physicians and surgeons and the incorporated colleges of pharmacy throughout the United States," to the importance of appointing delegates to the sixth decennial pharmacopœia convention, and of sending the names and residences of the same to me for publication. The convention meets on the first Wednesday in May, 1880, and I am required "to publish the names and residences of the delegates, for the information of the medical public, previous to its meeting."

I have received so far the names and residences of the following delegates:

From the Massachusetts College of Pharmacy, Boston: Prof. G. F. H. Markoe, Ph.G.; Samuel A. D. Sheppard, Ph.G.; Thomas Doliber, Ph.G.

From the Philadelphia College of Pharmacy: Prof. John M. Maisch, Alfred B. Taylor, Prof. Jos. P. Remington.

From the Louisville College of Pharmacy: Prof. Emil Scheffer, Prof. C. Lewis Diehl, E. Vincent Davis.

From the Maryland College of Pharmacy, Baltimore, Md.: *Delegates*—Wm. S Thompson, Louis Dohme, Jos. Roberts. *Alternates*—Charles Caspari, Jr, Dr. John F. Moore, Dr. Robert Lautenbach.

From the Medical Society of the District of Columbia: Prof. D. W. Prentiss, M.D.; Prof. Thomas Antisell, M.D.; Emeritus Prof. James E. Morgan, M.D.

From the National Medical College of Columbia University, Washington, D.C.: Prof. W. W. Johnston, M.D.; Prof. D. W. Prentiss, M.D.

From the Medical Department of the University of Georgetown, D. C.: Prof. W. H. Ross, M.D.; Prof. C. H. A. Kleinschmidt, M.D.

From the National College of Pharmacy, Washington, D. C: Mr. W. S. Thompson, Prof. Oscar Oldberg, Mr. R. B. Ferguson.

(Signed,) JAMES E. MORGAN, M.D.,
905 E Street, N. W, Washington, D. C.

Washington, D. C., January 28, 1880.

MINUTES OF THE PHARMACEUTICAL MEETING.

PHILADELPHIA, January 20th, 1879.

The meeting was called to order by the President, Dillwyn Parrish; the minutes of the last meeting were read and approved.

The Registrar presented five bound volumes of the "American Journal of Pharmacy," on behalf of our fellow member Mr. S. S. Bunting, and three volumes of the "New York Journal of Pharmacy," published in the years 1851-52-53, were also donated to the library by the Registrar. In this connection the Registrar requested those members having any of the older volumes of our "Journal" which they were willing to donate to the library to inform him, so that he could send for them, as we now only required eight volumes to complete the entire series.

Mr. Robert Shoemaker read a paper entitled *the apprentice of fifty years ago* (see page 65). The reading elicited remarks from several present, citing instances of similar character to those noted by the writer. Mr. Thompson said that the paper gave the younger portion of our trade a clear apprehension of the great advantages they possess over the learners of olden times. On motion the paper was referred to the Publishing Committee.

A paper upon *the oxidation of iron by nitric acid* (see page 74) was read by Mr. F. L. Slocum, a member of the present class. The paper was well received and referred to the Publishing Committee.

Professor Sadtler exhibited specimens of ozokerite from Austria, both crude and bleached, also of paraffin residuums that were obtained in the refining of petroleum. He suggested that these residuums should be used in the preparation of a basis for ointments, similar to cosmoline and vaselin.

Prof. Maisch read a paper by Mr. L. Lyons, a member of the present class, upon bromide of zinc and the syrup of that salt (see page 75). This paper was accompanied with specimens of the products obtained, and of mixtures of the syrup with various tinctures, medicated waters and syrups. The paper was referred to the Publishing Committee.

Mr. E. T. Ellis exhibited specimens of spherical soluble gelatin-coated pills, the coating of which was perfectly transparent.

A. paper by Mr. J. U Lloyd, of Cincinnati, upon the coloring matter of Frasera Walteri or American Colombo (see page 71) was read by Prof. Maisch, who remarked that he believed the crystals obtained by Mr. Lloyd to be identical with gentisin or, as it is also called, gentisic acid. This paper was also referred to the Publishing Committee.

Prof. Maisch read a paper upon some American species of Artemisia (see page 69), and presented for the Cabinet a specimen of Artemisia dracunculoides, from Arkansas. This paper was referred to the Publishing Committee.

An inquiry for a formula for compound tincture of ipecacuanha, or fluid Dover's powder, was answered by the following formula, taken from Dr. Squibb's list of preparations:

"COMPOUND TINCTURE OF IPECACUANHA, OR A FLUID FORM OF 'DOVER'S POWDER.'—Some years ago it was suggested that a mixture of Compound Solution of Opium, or of Deodorized Tincture of Opium, with Fluid Extract of Ipecacuanha, in proper officinal proportions, would form a good and convenient substitute for the Compound Powder of Ipecacuanha or Dover's Powder. It is prepared by concentrating the Deodorized Tincture of Opium on a water-bath, replacing the proportion of Alcohol lost, and mixing with this the Fluid Extract of Ipecacuanha in such proportion that each ten minims of the mixture represents one grain of Opium and one grain of Ipecacuanha; or, so that the mixture represents Dover's Powder in the proportion of minim for grain."

An inquiry for a formula for an elixir of lacto-peptin was made, and a specimen of it, with the formula by which it may be prepared, was promised by Dr. Mattison.

On motion, the meeting adjourned.

T. S. WIEGAND, *Registrar.*

PHARMACEUTICAL COLLEGES AND ASSOCIATIONS.

Alumni Association, Philadelphia College of Pharmacy. — The fourth social meeting of the session was held January 8, Mr. L. E. Sayre in the chair and Dr. Mattison acting as secretary. The pulverization of camphor by means of sublima-

tion was discussed; some remarks were made on description of drugs, and the nature of homœopathic preparations and medicines was alluded to. A preparation for *disguising the taste of quinia*, made by Mr. Pennypacker, was exhibited. It consists of equal parts of fluid extract of taraxacum, fluid extract of liquorice-root, and simple elixir.

Boston Druggists' Association.—At the annual meeting, held January 27, the following officers were elected: President, Joseph Burnett; Vice Presidents—A. Sigourney Bird, Thomas Doliber; Secretary, Henry Canning; Treasurer, Charles C. Goodwin. Executive Committee—E. Waldo Cutler, G. F H. Markoe, J. S. Melvin, E. H. Doolittle, J. S. Orne, I. B. Patten, A. G. Weeks. Committee on Membership—Solomon Carter, D. G. Wilkins, R. R. Kent, A. R. Bayley, B. O. Wilson.

The preparation of a pharmacy law and its presentation to the legislature for adoption was discussed at some length, and then referred to the Executive Committee.

At 5 o'clock the members and invited guests sat down to their fifth annual dinner, and after justice was done to the *menu* provided by Parker's, speeches were made by many of those present.

Pharmaceutical Association of Iowa.—A call, signed by a large number of pharmacists and druggists of Iowa, has been issued by Messrs. Geo. H. Schafer & Co., of Fort Madison. The convention will meet in the Academy of Music in the city of Des Moines, February 10 and 11, with the view of organizing a State Pharmaceutical Association. A bill for the regulation of the practice of pharmacy has been introduced into the House of Representatives, and it is expected that after the same shall have been discussed by the convention it will be passed by the legislature. We wish the proposed Association good success.

EDITORIAL DEPARTMENT.

"**The Relation of Drug Manufacturers to the Progress of Therapeutics**" is the title of a lengthy paper which was read before a medical society in Boston, by Dr. Robert T. Edes, professor of materia medica in Harvard University, and published in the "Boston Medical and Surgical Journal" of January 15th. The paper seems to be aimed on the one hand against the introduction of new remedies without careful chemical and physiological study, and on the other hand against the multiplication of compound medicines, frequently containing ingredients which no intelligent physician would prescribe together, or which may suit a particular case without being adapted to general application. Dr. Edes says: "When the pharmacist informs us of active principles, or gives us preparations honestly representing a drug, he does good service, but when he tells us why they act or when they should

be used he is going beyond his province." This is quite correct; but we wish to remind Dr. Edes that the aim and the practice of the various pharmaceutical colleges and associations is, in part, exactly that which he points out in the first part of the sentence quoted, while the condition depicted in the latter half has been brought about, not by the hoodwinking of the pharmaceutical profession, but through the easy-going credulity of the medical profession and press. Medical journals frequently extol preparations of the composition and mode of manufacture of which neither the writers of such articles nor the editors of the journals can have the remotest idea. The dispensing pharmacist is compelled to procure what the physician orders, even though, as Dr. Bolles stated before the society, he may have three or four good manufactures of extract of malt on his shelves, and be obliged to get a fifth kind, "because it is put up in such pretty bottles."

The physician creates the demand, and, in very many cases, the pharmacist cannot supply it, but has to fall back upon the manufacturers. Of course it is to the latter's interest—and this is perfectly legitimate—to respond to the demand, and, if possible, to increase it. We do not blame them, as long as they can find credulous doctors to prescribe their inventions, to get up new ones whenever a bright idea, with the probability of money in it, dawns upon them; but we do not regard this as legitimate pharmacy, even though such preparations be endorsed or prescribed by professors in medical colleges.

Dr. Bolles was correct in stating that physicians were more to be censured in this matter than the manufacturers or their agents—and most decidedly more than the pharmacist, who has to gratify such whims, not unfrequently to his loss Let the physician confine himself as much as possible to pharmacopœial preparations, and let him, as Dr. Bolles suggested, "hold the pharmacist personally responsible for the quality of their medicines, not directing them to get this or that manufacturer's ordinary preparations, nor allowing them to shield themselves behind the names of any wholesale makers, however famous" Not until then will the evil of which Dr. Edes complains be eradicated.

There are other points in Dr. Edes' paper to which fairly objection may be taken. We do not believe that, after due consideration, he would reiterate that morphia and atropia were all that is essential in thirty-two officinal preparations. And in regard to recognition by the pharmacopœia, we believe that his own admission, with regard to iron preparations, will reconcile him with the coming pharmacopœia, the scope of which will probably be extended rather than abridged.

REVIEWS AND BIBLIOGRAPHICAL NOTICES.

Pharmacographia —A history of the principal drugs of vegetable origin met with in Great Britain and British India. By Friedrich A. Flückiger, Phil. Dr., Professor in the University of Strassburg, and Daniel Hanbury, F.R.S., Fellow of the Linnean and Chemical Societies of London. Second edition. London. MacMillan & Co. (22 Bond street, New York), 1879. 8vo., pp. 803. Price, $5.

We take great pleasure in calling the attention of our readers to the appearance

of the second edition of this work, which contains such a mine of information on the drugs used in Great Britain and in India. In scope and arrangement the work is identical with the first edition, which was described in this journal, 1874, p. 589. In the present edition jaborandi leaves (Folia pilocarpi) are introduced, and a separate article is devoted to gallæ chinenses seu japonicæ, which formerly were treated under gallæ halepenses. Numerous botanical synonyms are given and many additions have been made, more particularly to the historical and chemical notes relating to the different drugs, so as to bring the information up to our present knowledge. A very acceptable addition is found in the appendix, which contains short biographic and bibliographic notes, relating to (ancient) authors and books quoted in the body of the work. As a source for trustworthy information, on the most important drugs, Pharmacographia will always be of the highest value, and no library on materia medica can be considered complete without it. It is proper to state that, though deprived of the assistance of Daniel Hanbury through his death nearly five years ago, Professor Flückiger has secured much valuable information from gentlemen named in the preface.

The Yearbook of Pharmacy: Comprising Abstracts of Papers relating to Pharmacy, Materia Medica and Chemistry, contributed to British and foreign journals from July 1, 1878, to June 30, 1879; with the Transactions of the British Pharmaceutical Conference at the sixteenth annual meeting, held at Sheffield, August, 1879. London: J. & A. Churchill, 1879. 8vo, pp. 567.

This annual publication reports with accustomed accuracy on the investigations of interest to pharmacists published during the period indicated. Nearly one-half of the book contains the transactions, list of members, etc., of the British Pharmaceutical Conference. In our October number we have published an account of the last meeting, at which twenty-one papers were read, and of these several have been transferred to our columns.

Jahresbericht über die Fortschritte der Pharmacognosie, Pharmacie und Toxicologie. Von Prof. Dr. G. Dragendorff. Neue Folge. 13. Jahrgang, 1878. Göttingen: Vandenhoek & Ruprecht's Verlag. 1879. 8vo, pp. 656.

Annual Report on the Progress of Pharmacognosy, Pharmacy and Toxicology for the Year 1878

This publication is replete with information. Like the preceding volumes, it is a full record of the investigations and observations in pharmacy and the collateral sciences, which have been published during the year 1878. As heretofore, it contains also a list of new publications (376), in different languages.

It will be of interest to many of our readers that the publishers have reduced the price of the first ten volumes of the present series to 45 marks, which is less than one-half the publishing price.

Proceedings of the Ninth Annual Meeting of the New Jersey Pharmaceutical Association. Camden, 1879. 8vo, pp. 64.

A report of the meeting, which was held at Princeton, May 21 and 22, will be found in our July number. The pamphlet contains, in addition to the minutes, the papers read, and an interesting and instructive report on pharmaceutical legislation in New Jersey.

Proceedings of the Ohio State Pharmaceutical Association at its first meeting, held in Columbus, September 2d, 1879. Cleveland, 1879. 8vo, pp. 16.

An account of the organization of this society will be found in our October number.

Proceedings of the Western Wholesale Drug Association, in convention at Milwaukee, Nov. 13th and 14th, 1879. St. Paul: John J Lemon. 8vo, pp. 48.

The objects of the association are to create a permanent social feeling between the wholesale druggists, to obliterate the feeling of jealousy and distrust that seems to exist, to correct excessive and unmercantile competition, to remove by concert of action all evils and customs against good policy and sound business principles, and to establish rules and regulations, that all differences and grievances may be fairly and equitably adjusted.

The officers for the current year are: President, Dr. H. H. Button, Milwaukee. Vice-Presidents—J C. Richardson, St. Louis; W. A. Robinson, Louisville; S. A. Tolman, Chicago; Geo. A. Kelly, Pittsburgh. Treasurer, S. M. Strong, Cleveland Secretary, D. R. Noyes, St. Paul.

The Chemists' and Druggists' Diary. 1880. London. 4to.

This issue is accompanied by a map of the city of London.

The Physician's Hand-book for 1880. By William Elmer, M.D., and Albert D. Elmer, M.D. New York: W. A. Townsend, Publisher. 16mo, pp. 314. Price, $1.75.

The first 134 pages are printed matter, giving brief information on diseases, poisons, properties of remedies, etc.; the remaining portion is prepared so as to be conveniently used by the physician for recording his professional engagements, for which purpose it appears to be well adapted. It is suitably bound in morocco with tucks, and may be conveniently carried in the pocket.

Ueber die Wirkung einiger Antiseptica und verwandter Stoffe auf Hefe. Inaugural-Dissertation von Woldemar Werncke, Dorpat, 1879. 8vo, pp. 99.

On the action of certain antiseptics and allied bodies upon yeast.

A large number of experiments were made with a liquid containing 1 gram of compressed yeast (dry residue = ·246 gram) in 10 cc. of water, and its efficacy was proven to be fully equal to fresh surface yeast with an equal weight of dry residue. It was found that the following compounds completely destroyed the efficacy of the yeast liquid when used in the proportions indicated. Corrosive sublimate 1 : 42·800,

volatile oil of mustard 1 : 6300, thymol 1 : 3100, sodium hydrate 1 : 1050, salicylic acid 1 : 1000, oil of cinnamon 1 : 1000, xylol 1 : 800, benzoic acid 1 : 680, creasot 1 : 500, cresylic acid 1 : 460, crystallized carbolic acid 1 : 150, sulphuric acid 1 : 55, borax 1 : 50, glycerin 1 : 5. Altogether 47 different substances were experimented with, of which the least effectual, commencing with the weakest, were: saltpetre, zinc sulphate, potassium chlorate, boric acid, petroleum, sodium benzoate, quinia hydrochlorate, sodium salicylate and tannin.

The reception of the following reprints and reports is acknowledged:

Sketch of Heinrich Wilhelm Dove. By Frederick Hoffmann. With portrait. From the "Popular Science Monthly," December, 1879.

Réduction du Chlorure d'Argent (Reduction of Chloride of Silver). By Dr. D. Tommasi. From "Journ. de Phar. et de Chimie."

Recherches sur la Constitution des Hydrates Ferriques (Researches on the Constitution of the Ferric Hydrates). By Dr. D. Tommasi. From "Revue hebdom. des Sciences."

Notes on Hospital and Private Practice. By Henry Gibbons, Sr., M.D. Read before the California State Medical Society.

Some Important Topical Remedies and their use in the Treatment of Skin Diseases. By John V. Shoemaker, A.M, M.D. Read before the Medical Society of the State of Pennsylvania.

Neurasthenia (Nerve-exhaustion) with Remarks on Treatment. By Geo. M. Beard, A.M., M.D. From "St. Louis Med. and Surg. Jour."

Morbid Fear as a Symptom of Nervous Disease. By G. M. Beard, M.D. Read before the American Neurological Association.

Oesophagismus, with Remarks on the Subject. By J. J. Henna, M.D. From the "Hospital Gazette," Oct. 18, 1879.

Proceedings of the Association of Medical Officers of American Institutions for Idiotic and Feeble-minded Persons. Philadelphia: J. B. Lippincott & Co. 8vo, pp. 108.

This pamphlet contains the proceedings of the meetings held at Syracuse, N. Y., June, 1878, and at Lincoln, Ill., May, 1879.

Report of the Committee on Public Health Relative to Lunatic Asylums. Albany: C. Van Benthuysen & Sons. 8vo, pp. 51.

Presented to the legislature of the State of New York.

OBITUARY.

CHARLES HOWARD DINGEE was one of three graduates of the Philadelphia College of Pharmacy of the class of 1826—the first upon whom the diploma of the College was conferred. His associate graduates were Charles McCormick and William Sharp.

Mr. Dingee was born in the city of Philadelphia, May 22d, 1805. His early education was at a Friends' school on Pine street, near Second street. He after-

wards went to the school of Dr. Wiley, at Eleventh and Market streets, then known as the Latin school. At this school he received honors for proficiency in his studies.

After leaving this school he entered the store of Daniel B. Smith, as an apprentice to the drug and apothecary business. After graduating at the Philadelphia College of Pharmacy he entered into business with his brother, John Henry Dingee (also a graduate of this College), on Second street, near South street. On account of the impaired health of Mr. John H. Dingee, the partnership was dissolved, and Charles went into the employ of Nicholas Lennig, where he remained until he again formed a partnership with his brother, and opened a store at No. 145 South Front street, under the firm name of Dingee & Brother, for the purpose of conducting a drug commission business. After some years the partnership was again dissolved, and the business conducted by C. H. Dingee, retaining the old name of Dingee & Brother. The failure of his sight obliged him to withdraw from active business pursuits; he, however, retained a room in the building where his business had been conducted, and here he spent much of his time.

The father of Mr. Dingee died when Charles was about two years old, and his early care devolved upon his mother and his uncle, John Henry Fenner. From these worthy guardians he received the careful religious training which made him in after life a man of integrity, respected by all his business associates and friends.

He married early in life, but never had any children. He survived his wife several years.

Mr. Dingee died from paralysis at the house of his nephew, 1006 Clinton street, on the 30th of December, 1879, in the 75th year of his age His funeral was attended by the officers of the Philadelphia College of Pharmacy.

J. B. ALPHONSE CHEVALLIER, honorary professor of the superior school of pharmacy at Paris, died there November 30, in the 87th year of his age. The deceased was for many years professor at the Paris school of pharmacy and a member of the Academy of Medicine and of the Board of Health. He was the author of numerous essays on pharmaceutical subjects, of which many will be found in the earlier volumes of this journal. In connection with A. Richard he published a dictionary of drugs, and, together with A. Payen, a work on chemical analysis. His most important work is a dictionary of falsifications of alimentary and medicinal substances. The deceased was, among others, an honorary member of the American Pharmaceutical Association and of the Philadelphia College of Pharmacy.

J. M. BOUTRON-CHARLARD, formerly a prominent pharmacist of Paris, died recently in that city at the age of 83 years. He retired from active business in 1834. but continued his scientific researches, many of which were made conjointly with Robiquet, Pelouze, Frémy and others. He was a member of the Academy of Medicine since 1824, was president of the Pharmaceutical Society of Paris in 1843, and since 1835 was one of the editors of the "Journal de Pharmacie et de Chimie," in which most of his scientific investigations were published. Several of his essays have been republished in the earlier volumes of this journal.